ORDER NO. MKE0001000C1

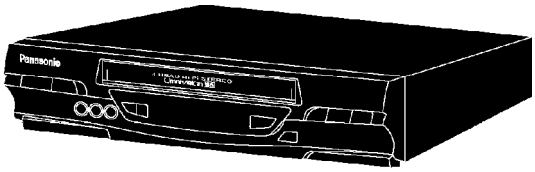
B3

Service Manual

Video Cassette Recorder

Omnivision VHS

PVQ-V200 / PV-V4020 / VHQ-400 / VHQ-40M / PV-V4520 / PV-V4540



SPECIFICATIONS

ITEM		SPECIFICATION	1	2	3	4
Power	Source	120 V AC ±12 V AC, 60 Hz ±3 Hz	○	○	○	○
	Consumption	Approx. 18 W (Power off) Approx. 3.5 W (Power off)	○	○	–	–
		Approx. 23 W (Power on) Approx. 3.5 W (Power off)	–	–	○	○
Video	Head	2 rotary heads helical scanning system	○	○	–	–
		4 rotary heads helical scanning system	–	–	○	○
	Input	Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75 Ω, unbalanced	○	○	○	○
	Output	Level: VIDEO OUT Jack (Phono type) 1.0 Vp-p 75 Ω, unbalanced	○	○	○	○
	Signal-to-Noise Ratio	SP: more than 43 dB	○	○	○	○
		LP/SLP: more than 41 dB	○	○	○	○
	Horizontal Resolution	Color/Mor scheme: more: SP: 230 lines	○	○	○	○
		LP/SLP: 220 lines	○	○	○	○
	Head Format	Mono: 1 stationary head	○	○	○	○
		Hi-Fi Stereo: 2 rotary heads	–	–	○	○
Audio	Input	Level: AUDIO IN Jack (Phono type) -10 dBV 50 kΩ, unbalanced	○	○	○	○
	Output	Level: AUDIO OUT Jack (Phono type) -8 dBv 600 Ω, unbalanced	○	○	○	○
		AUDIO OUT Jack (Phono type) -8 dBv 1 kΩ unbalanced	–	–	○	○
	Frequency Response	Normal Mono: SP: 100 Hz-8 kHz	○	○	○	○
		LP: 100 Hz-6 kHz	○	○	○	○
		SLP: 100 Hz-6 kHz	○	○	○	○
		Hi-Fi Stereo: SP/SLP: 20 Hz-20 kHz	–	–	○	○
	Signal-to-Noise Ratio	Normal Mono: SP: more than 42 dB	○	○	○	○
		LP/SLP: more than 40 dB	○	○	○	○
		Hi-Fi Stereo: SP/SLP: more than 60 dB	–	–	○	○
	Wow and Flutter	Normal Mono: SP: Less than 0.3 % WRMS	○	○	○	○
		LP: Less than 0.4 % WRMS	○	○	○	○
		SLP: Less than 0.4 % WRMS	○	○	○	○
		Hi-Fi Stereo: Less than 0.015 % WRMS	–	–	○	○

ITEM	SPECIFICATION	1	2	3	4
RF Out	CH-3/CH-4 switchable 75 dBμ (open voltage) 75 Ω, unbalanced	○	○	○	○
Tuner	Broadcast Channels: VHF 2-13, UHF 14-69	○	○	–	–
	CATV Channels: Midband A through I: 1-4-22; Superband...through W: 23-36; Hyperband AA-EE: 37-64; Lowband A-5-A-1: 65-69; Special CABLE channels 54-61; Ultraband 65-94, 100-125	○	○	○	○
Video Signal	EIA Standard 525 lines, 60 fields, NTSC Color Signal	○	○	○	○
Tape Speed	SP: 1-5/16 ips (33.35 mm/s), LP: 21/32 ips (16.67 mm/s), SLP: 7/16 ips (11.12 mm/s)	○	○	○	○
	Record/Playback Time (Per Full Reel Tape): 180 min. (T-160 tape used in SP mode)	○	○	○	○
	FF/REW Time: ...ess than 2-1/2 min. (T-160 tape)	○	○	○	○
Tape Format	Tape width: 12.7 mm (1/2 inch) High density tape	○	○	○	○
Operating Condition	5 °C-40 °C (41 °F-104 °F) (Temperature)	○	○	○	○
	10 %-75 % (Humidity)	–	–	○	○
Dimension	360 mm x 95 mm x 232 mm (W x H x D)	○	○	○	○
	(14-5/16 inch x 3-11/16 inch x 9-3/4 inch (W x H x D))	–	–	○	○
Weight	2.90 kg (6.4 lbs.)	○	–	–	–
	2.86 kg (6.3 lbs.)	–	○	○	○

1. PVQ-V200
2. PV-V4020
3. VHQ-400/VHQ-40M
4. PV-V4520/PV-V4540

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic / Quasar

1. SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by⚠ in the Schematic Diagrams, Circuit BoardLayout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permissionof manufacturer.

2. **An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician fromaccidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.**
3. **When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
5. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

LEAKAGE CURRENT COLD CHECK

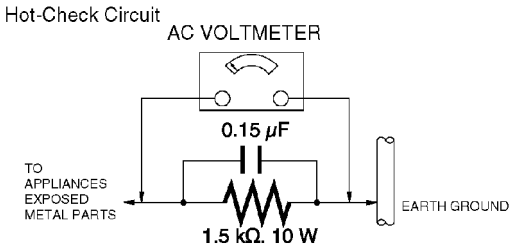
1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallicpart has a return path to the chassis, the reading should be between 1 MΩ and 5.2 MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinity.**

LEAKAGE CURRENT HOT CHECK
(See figure 1.)

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**

2. **Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in figure 1.**
3. **Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks. Leakage current must not exceed 1/ 2 mA. In casea measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.**

Figure 1



2. PREVENTION OF ELECTRO-STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits, some field-effecttransistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain andwear a commercially available discharging ESD wrist strap, which should remove electrostatic charge for potential shock**

reasons prior to applying power to the unit under test.

2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together byconductive foam, aluminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**
   CAUTION:Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor cangenerate static electricity (ESD) sufficient to damage an ES device).**

"NOTE to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connectedto the grounding system of the building, as close to the point of cable entry as practical."

3. OPERATION GUIDE

4. SERVICE NOTES (PLEASE READ)

4.1. SERVICE NOTES

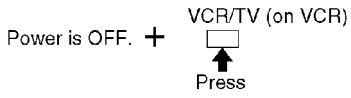
4.1.1. SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit fault code will be displayed in F.I.P.

The Simplified Fault finding data is stored in the Memory IC (IC6005). This data is cleared after it is displayed, and then the POWER button is pressed back on.

1. With power turned off, press VCR/TV button on VCR (for over 3 seconds if VCR is not in shut off condition).

Fig. 1-1



2. Fault code (4 digit number) will be displayed in F.I.P. as shown.

Fig. 1-2

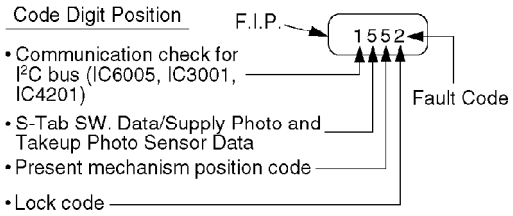

Code Digit Position
F.I.P.
1552
Fault Code
• Communication check for I²C bus (IC6005, IC3001, IC4201)
• S-Tab SW. Data/Supply Photo and Takeup Photo Sensor Data
• Present mechanism position code
• Lock code

Fig. 1-3

Explanation of Codes	Code No.			
Communication check for I²C bus (IC6005, IC3001, IC4201) (Refer to Fig. 1-4.)	1 ~ 8			
S-Tab SW. Data/Supply Photo and Takeup Photo Sensor Data (Refer to Fig. 1-5.)		1 ~ 8		
Present Mechanism Position Code Mechanism Position is indicated. (Refer to Fig. 1-6.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note) • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			0 1 2 3 1 2	 4 4

Fig. 1-4

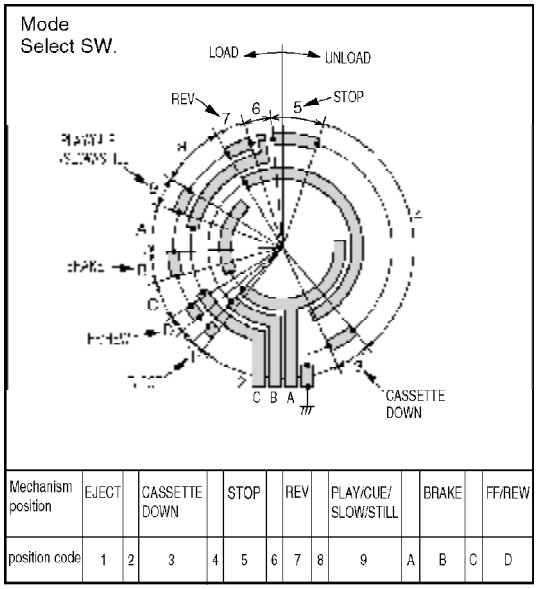
Communication check for I²C bus (IC6001◄►IC6005)	Communication check for I²C bus (IC6001◄►IC3001)	Communication check for I²C bus (IC6001◄►IC4201)	Code No.
OK	OK	OK	1
		NG	2*
	NG	OK	3
		NG	4*
NG	OK	OK	5
		NG	6*
	NG	OK	7
		NG	8*

Note: For Normal Audio (Mono) models, "Communication check for I²C bus (IC6001◄►IC4201)" is ignored and only even code No.s (with*) will be displayed in F.I.P.

Fig. 1-5

S-Tab SW. condition	Supply Photo Sensor condition	Takeup Photo Sensor condition	Code No.
ON	OFF	OFF	1
	ON	OFF	2
	OFF	ON	3
	ON	ON	4
OFF	OFF	OFF	5
	ON	OFF	6
	OFF	ON	7
	ON	ON	8

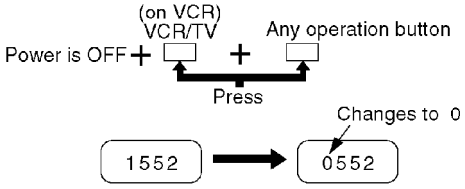
Fig. 1-6



Mechanism position	EJECT		CASSETTE DOWN		STOP		REV		PLAY/CUE/ SLOW/STILL		BRAKE		FF/REW
position code	1	2	3	4	5	6	7	8	9	A	B	C	D

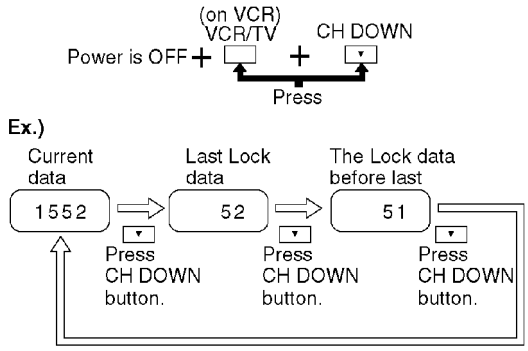
3. While pressing VCR/TV button on VCR with power turned off, press any operation button on either VCR, or remote to detect that a key has been pressed.
The 1st digit changes to "0" only when key is detected.

Fig. 1-7



4. **When 1 to 4 listed in Lock code occurs, Lock data will be stored into EEPROM IC (Current data, Last Lock data, and the Last Lock data before last). Lock data displayed in F.I.P. will be changed by pressingCH DOWN button.**

Fig. 1-8



Note:

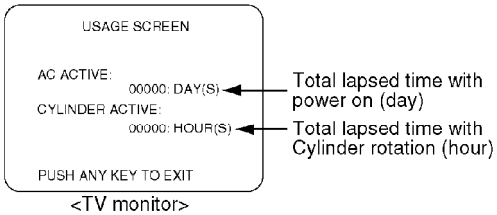
1. **Lock data will be kept after AC Cord is unplugged.**
2. **When 1 to 4 listed in Lock code occurs, the VCR goes into VCR shut-off condition. VCR stops and all VCR function buttons except for power become non-operational.**

4.1.2. USAGE SCREEN MODE

This function displays the Total lapsed time with power on (day) and the Total lapsed time with Cylinder rotation (hour) on the TV monitor.

1. **With power turned on without a cassette, press VCR/TV button on VCR and 7 key on remote together.**
   The USAGE SCREEN will be displayed on the TV Monitor.

Fig. 1-9



<TV monitor>

Note:

After replacing the Cylinder Unit, press COUNTER RESET button on remote in this mode. Only Total lapsed time with Cylinder rotation (hour) will be cleared to 0.

2. To release from Usage Screen Mode, press any operation button on VCR in this mode. VCR will return to normal operation mode.

4.1.3. EEPROM IC (IC6005), MAIN C.B.A. REPLACEMENT NOTE

After replacing EEPROM IC (IC6005) or Main C.B.A., be sure to perform the "PG SHIFTER ADJUSTMENT" in ELECTRICAL ADJUSTMENT procedures.

4.1.4. SERVICE POSITION

4.1.4.1. Service Position

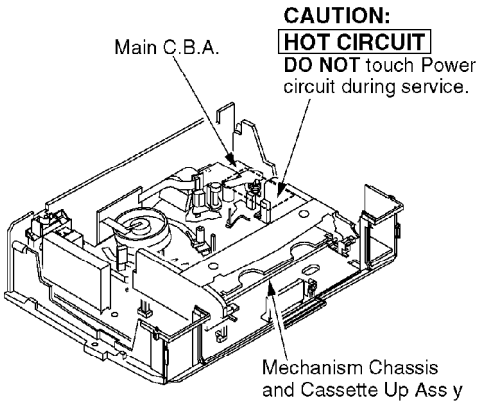
Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	Main C.B.A. check

CAUTION:

HOT CIRCUIT (Primary circuit) exists on the Main C.B.A.
Use extreme care to prevent accidental shock when servicing.

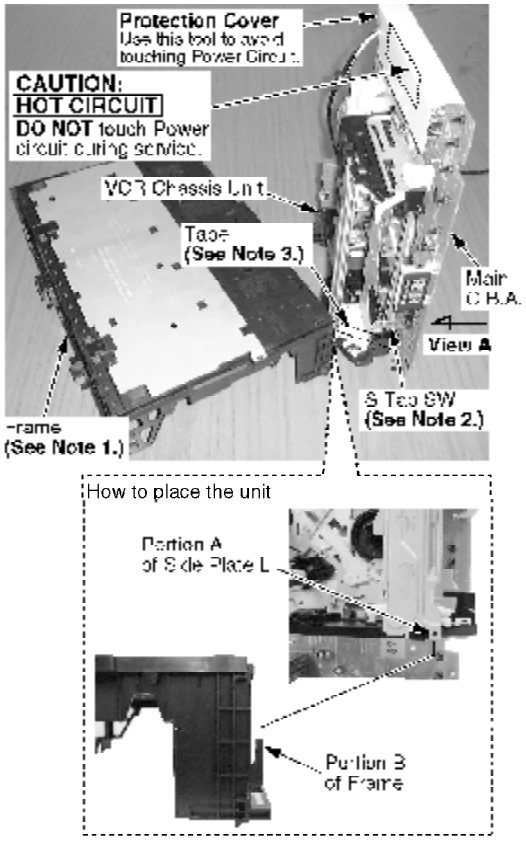
4.1.4.1.1. Service Position (1)

Fig. 2-1



4.1.4.1.2. Service Position (2)

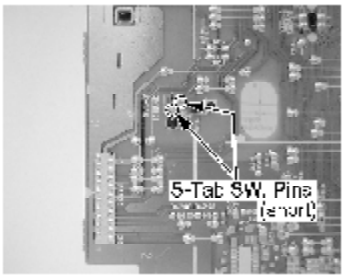
Fig. 2-2



Note:

1. **Alternative method in Service Position (2)**
   2 piled VHS Cassette Tapes can be substituted for the Frame as shown in Fig. 2-2.
2. **When recording in Service Position (2), short the S-Tab SW. Pins on foil side of Main C.B.A. to turn this SW. on.**

Fig. 2-3



Main C.B.A. (foil side)
View A

Alternative method:
Cover the S-Tab SW. with masking tape.

3. **Place the tape between the Cassette Up Ass'y and Main C.B.A. to get a stability.**
4. **When disassembling/assembling, refer to "CABINET SECTION" in**

DISASSEMBLY/ASSEMBLY PROCEDURES.

To avoid touching Power Circuit,
following Tool (**Protection Cover**) is recommended.

How to make the Protection Cover:

1. Cut a Cassette Tape Case as shown.

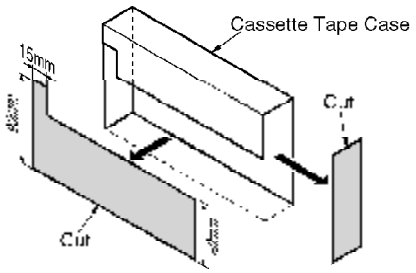


Fig. 2-4

2. Cover the Power Circuit portion on Main C.B.A. with it.

Note:
The Protection Cover is not supplied.

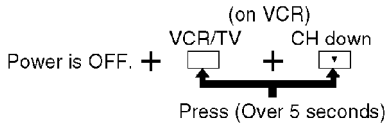
4.1.5. HOT CIRCUIT

Primary circuit exists on the Main C.B.A.
This circuit is identified as " HOT " on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

4.1.6. SERVICE MODE

In order to inhibit detection of the Supply& Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.

Fig. 3-1

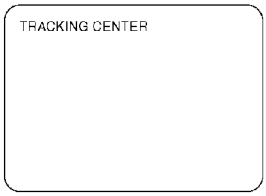


The power comes on and the unit goes into service mode.
In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.
To release from this mode, press POWER button off or disconnect AC Plug.

4.1.7. TRACKING CENTER MODE (TRACKING FIX AT CENTER)

Insert the Cassette tape. Set the unit into Service Mode. Play back the Cassette tape. Press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor. In this mode, the tracking is fixed at center. (Autotracking and manual tracking functions are not operational.)

Fig. 3-2



<TV monitor>

To release from this mode, press PLAY or STOP button.

4.1.8. CAUTION FOR INSTALLATION OF FRONT PANEL ASS'Y

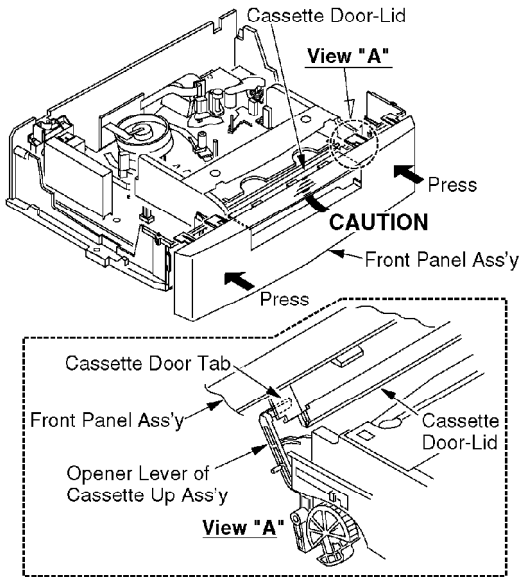
CAUTION:

Opener Lever may be damaged when Front Panel Ass'y is installed, with Cassette Door-Lid of Front Panel Ass'y and Opener Lever of Cassette Up Ass'y set incorrectly.

Install the Front Panel Ass'y as follows:

1. **Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.**
2. **Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.**

Fig. 4



4.1.9. METHOD FOR LOADING/UNLOADING OF MECHANISM

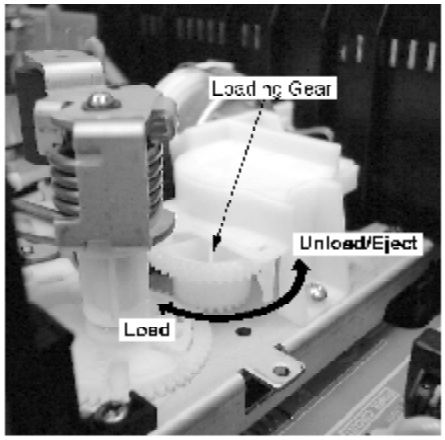
(Manual Method)

Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.

Note:

Do not use this method if Mechanism is jammed or locked.

Fig. 5-1

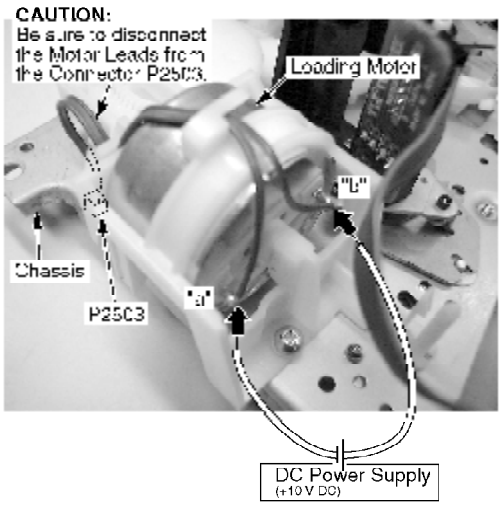


(Electrical Method)
Apply+10.0 V DC Power Supply to the Loading Motor terminals.
Loading
DC+ to Portion "a," DC - to Portion "b"
Unloading
DC - to Portion "a," DC+ to Portion "b"

CAUTION:

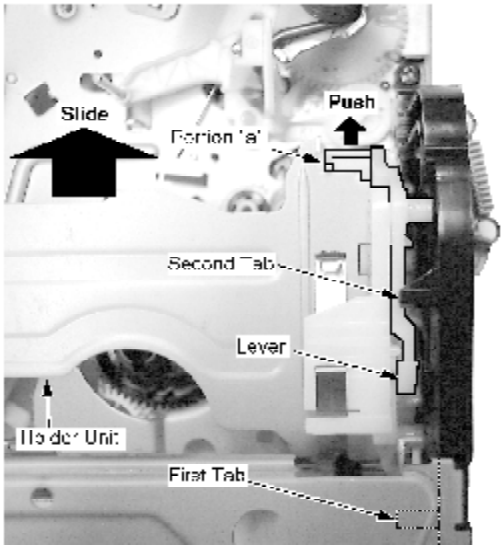
Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503.
Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.

Fig. 5-2



When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.

Fig. 5-3



4.1.10. HOW TO REMOVE A JAMMED TAPE

CAUTION:

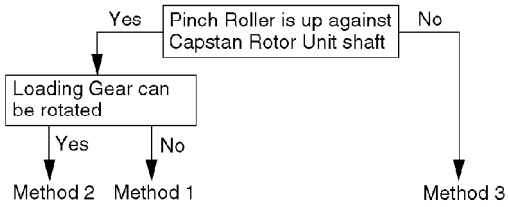
Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.

Remove a jammed tape as follows:

4.1.10.1. Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

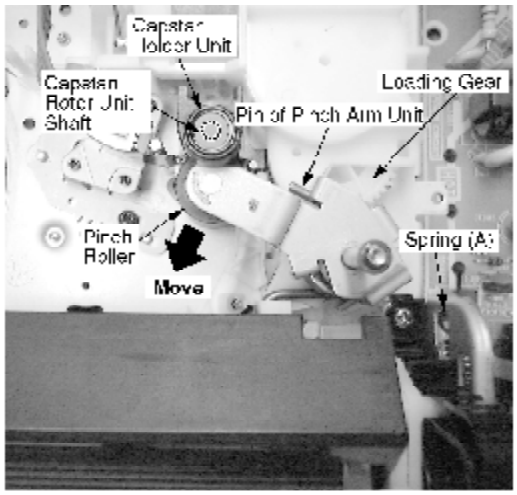
Fig. 6-1



4.1.10.1.1. Method -1:

1. Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.

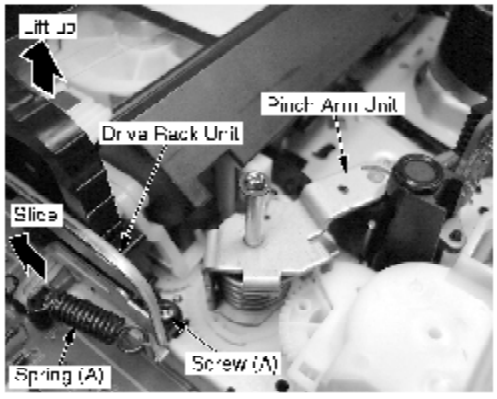
Fig. 6-2



Top View

2. **Remove the tape from the tape path.**
3. **Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.**
4. **Unhook Spring (A) of the Drive Rack Arm.**
5. **Remove Screw (A).**
6. **Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassettetape from the Cassette Up Ass'y.**
7. **Check the cause of mechanical trouble and repair.**

Fig. 6-3



4.1.10.1.2. Method -2:

1. **Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.**

2. Perform Step 2 through Step 7 of Method -1.

4.1.10.1.3. Method -3:

1. Perform Step 2 through Step 7 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECTPosition Confirmation " in DISASSEMBLY/ASSEMBLY PROCEDURES.)

4.1.10.2. Electrical Method

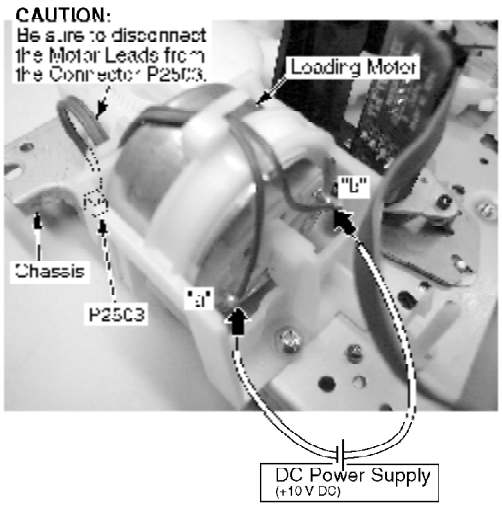
Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.

CAUTION:

1. **Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503.**
   Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.
2. **If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."**

1. **Be sure to disconnect the Motor Leads from the Connector P2503.**
2. **Apply+10.0 V DC Power Supply to the Loading Motor terminals.**
3. **When the Loading Posts reach the fully unloaded position, remove the Power Supply.**

Fig. 7



4. **Rewind the tape into the cassette by turning the Center Clutch**

Unit counterclockwise.

5. Eject the cassette by applying+10.0 V DC Power Supply again.

4.1.11. BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

4.1.12. HOW TO RESET ALL VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, nocassette inserted), hold down the PLAY and CH UP buttons on the unit togetherfor more than 5 seconds.
Power will shut off.

4.1.13. HOW TO CONFIRM AUTO CLOCK SET FEATURE

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

4.1.14. VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resultingin personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing. Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

4.1.15. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4.1.16. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement
   A. Soldering Iron
      Use a pencil-type soldering iron that uses less than 30 watts.
   B. Solder
      Eutectic Solder (Tin 63%, Lead 37%) is recommended.
   C. Soldering time
      Do not apply heat for more than 4 seconds.
   D. Preheating
      Leadless capacitor must be preheated before installation. -

(266°F ~ 302°F)
(130°C ~150°C) for about 2 minutes.

Note:

A. Leadless components must not be reused after removal.

B. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component

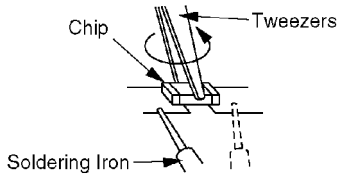
Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

Note:

A. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.

B. Be careful not to break the copper foil on the printed circuit board.

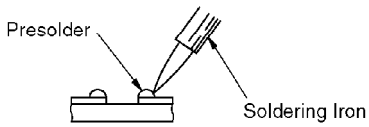
Fig. 8-1



3. Installing the leadless component

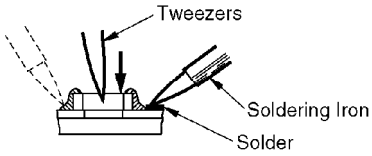
A. Presolder the contact points on the circuit board.

Fig. 8-2



B. Press the part downward with tweezers and solder both electrodes as shown below.

Fig. 8-3



Note:

Do not glue the replacement leadless component to the circuit

board.

4.1.17. MODEL NO. IDENTIFICATION MARK

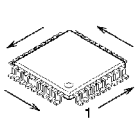
Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

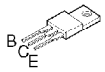
Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "Z."

4.2. IC, TRANSISTOR AND CHIP PART INFORMATION

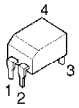
MAIN C.B.A.



AN3479FBP-A, MN101D02FPN, MN101D02GPP, AN3662FBP-V



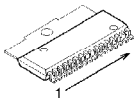
2SC5130LF608, 2SC4533LP.KT



ON3131-S.KT, ON3131-R.KT, PS2501-1-X

2SD2259

2SD1581

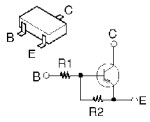


AN3808

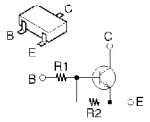
2SD2159

2SD601, 2SB709A, 2SB970, 2SD1819A, 2SC4081T106R, 2SC2412K1, 2SA1036K146Q, 2SA1036K146R, 2SA1037K146R, 2SB1218ARS, 2SA1576A106R, 2SD2097TV2R, 2SD235800A

T4101, EIQ7QF018Q

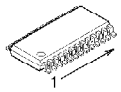


UN511L (R1=4.7K, R2=4.7K), UN5115 (R1=10K, R2=OPEN), DTA114TU (R1=10K, R2=OPEN), DTA143EU (R1=4.7K, R2=4.7K)



UN5215 (R1=10K, R2=OPEN), DTC114TU (R1=10K, R2=OPEN)

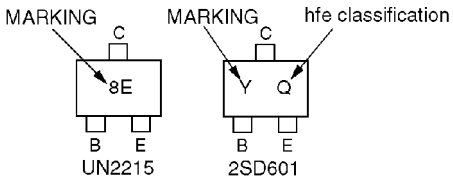
GENERAL C.B.A./ASS'Y PARTS



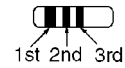
MN3885S, AN3361SB, AN3845SC, AN3371SB, KS24C011CS, KS24C011IS, M24C01-MN6, AT24C01A10SI, DN8657S-E1, UPD4053BG

4.2.1. HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	Z	2SD1819A
B	2SC4081T106R	1R	2SB970
B	2SB1218ARS	6E	UN5115
F	2SA1037K146R	6Q	UN511L
F	2SA1576A106R	8E	UN5215
Y	2SD601		



4.2.2. HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.



The widest color band must be read first for value.

1. RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.
A. ERD10LLJ: Refer to above type.
B. ERD10TLJ: The narrow color band must be read first for value.
If this part is included in the parts list, be sure that the color band is read properly when servicing.

2. CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused.
Always use a new part when installing a chip part.

5. DISASSEMBLY/ASSEMBLY PROCEDURES

5.1. CABINET SECTION

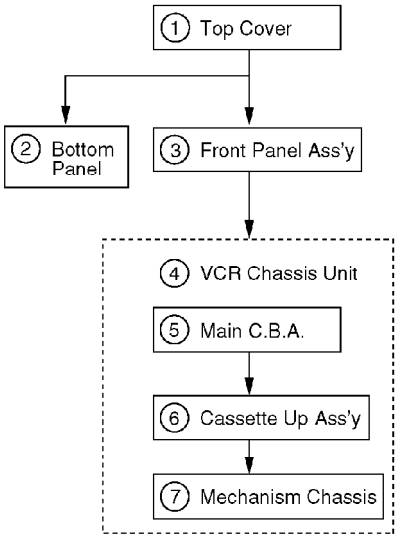
5.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:

Disconnect AC plug before disassembly.

Fig. D1

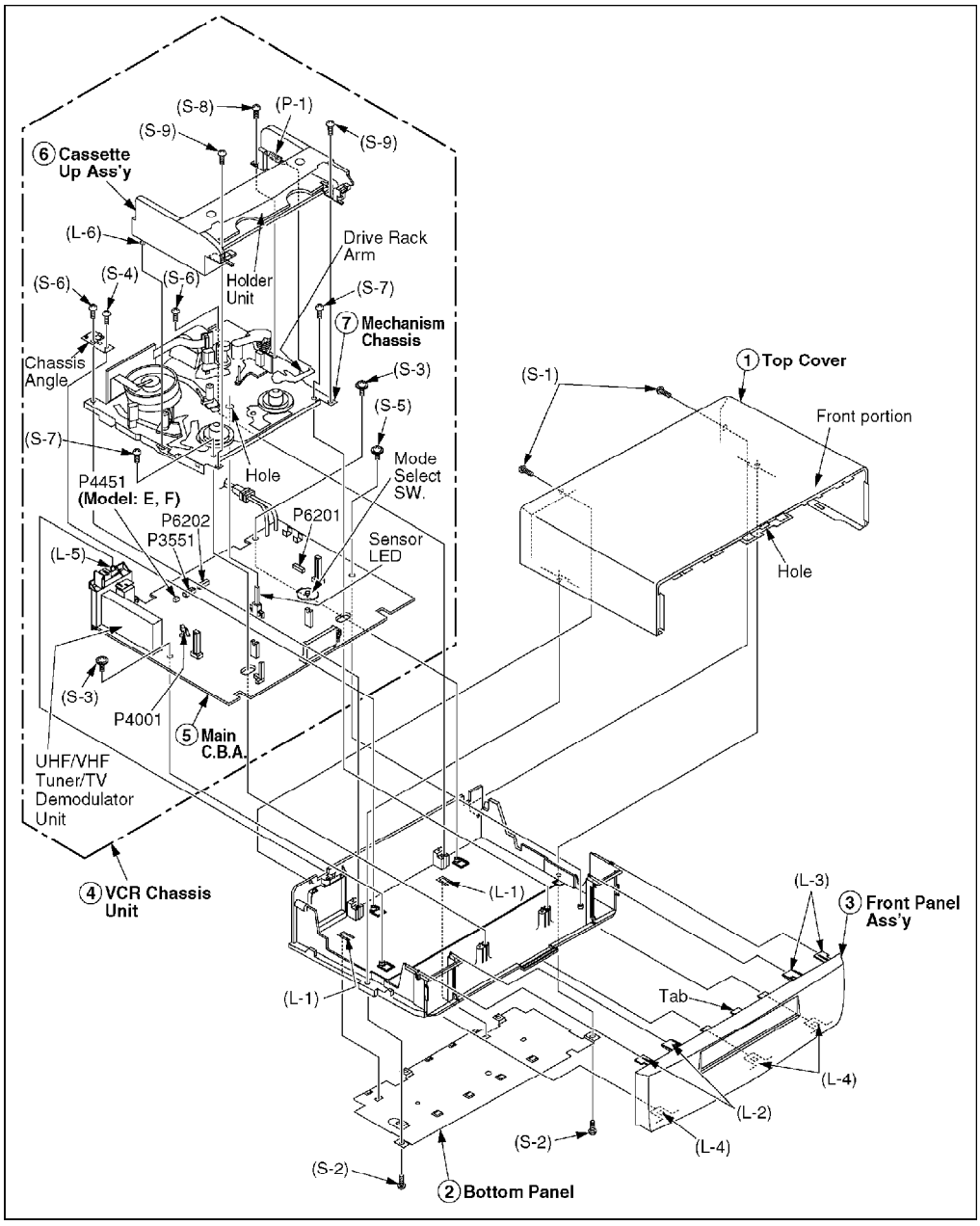


5.1.2. Disassembly Method

STEP /LOC. No.	PART	Fig. No.	REMOVE	Note
①	Top Cover	D2	2(S-1), 2(S-2)	1
②	Bottom Panel	D2	2(S-3), (S-4), 2(L-1)	---
③	Front Panel Ass'y	D2	2(L-2), 2(L-3), 3(L-4)	2
④	VCR Chassis Unit	D2	(S-5), 2(S-6), Chassis Angle, 2(S-7), (L-5)	3
⑤	Main C.B.A.	D2	P6201, P6202, P3551, P4451, P4001	4
⑥	Cassette Up Ass'y	D2	(S-8), 2(S-9), (L-6), (P-1)	5
⑦	Mechanism Chassis	D2	----------	---
	A	B	C	D	E

How to read chart shown above:
A:Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Part to be removed or installed.
C: Fig. No. showing Procedure or Part Location.
D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
2(S-1)= 2 Screws (S-1), 2(L-1)= 2 Locking Tabs (L-1),
(P-1)= Spring (P-1)
E: Refer to "Notes in chart."

Fig. D2



5.1.2.1. Notes in chart

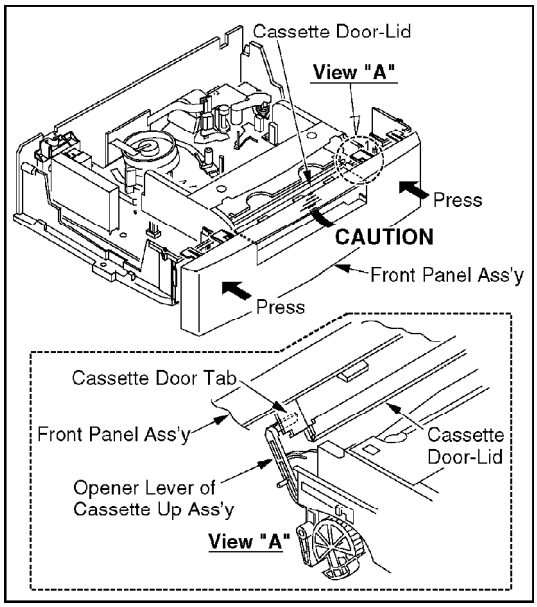
1. **Installation of Top Cover**
   Install the Top Cover front portion at a downward angle so that the tab on the Front Panel Ass'y fits into the hole in the Top Cover. Then, lower the rear portion into place and tighten 2 Screws (S-1) and 2 Screws (S-2).
2. **Installation of Front Panel Ass'y**
   CAUTION:
   Opener Lever may be damaged when Front Panel Ass'y is installed, with Cassette Door-Lid of Front Panel Ass'y and Opener

Lever of Cassette Up Ass'y set incorrectly.

A. When installing the Front Panel Ass'y, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.

B. Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.

Fig. D3



3. Installation of VCR Chassis Unit

When installing 2 Screws (S-7), slide the Holder Unit of the Cassette Up Ass'y (Refer to "METHOD FOR LOADING/ UNLOADING OF MECHANISM" in SERVICE NOTES) totighten screws. Then, slide it back to the EJECTPosition.

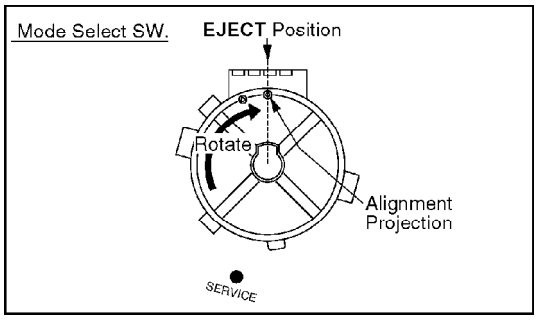
Make sure that Mechanism and Cassette Up Ass'y are in the EJECTPosition. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLYPROCEDURES.)

4. Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.

A. Make sure the Mode Select SW. on the Main C.B.A. is in EJECT position. If not, rotate the Mode Select SW. until the alignment projection is in the EJECTPosition.

B. Make sure the Mechanism and Cassette Up Ass'y are in the EJECTPosition. (Refer to "EJECT Position Confirmation"in DISASSEMBLY/ASSEMBLY PROCEDURES.)

Fig. D4



C. Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 5 Connectors (P6201, P6202, P3551, P4001,and P4451 (Model: E,F)) are aligned and seated securely.

5. Installation of Cassette Up Ass'y

A. Confirm that the Locking Tab (L-6) under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette UpAss'y towards the back.

B. When installing 2 Screws (S-9), slide the Holder Unit (Refer to " METHOD FOR LOADING/UNLOADING OF MECHANISM" in SERVICE NOTES) to tighten screws.Then, slide it back to the EJECTPosition.

C. Hook Spring (P-1) to the Drive Rack Arm on the Mechanism Chassis.

5.2. MECHANISM SECTION

5.2.1. Disassembly/Reassembly Method

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly/reassembly and alignments procedures in EJECT Position.

Step/Loc No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	----------	Grounding Plate Unit	J2-1	(S-1)	Adjustment
②	----------	Full Erase Head	J2-1	(L-1)	
③	1	Cylinder Unit	J2-1	P4092, Unsolder, 2(S-2), 3(S-3), Head Amp C.B.A.	TAPE INTERCHANGEABILITY Adjustment
④	----------	Capstan Belt	J3-1	-	
⑤	----------	Support Angle	J3-1	(S-4), 2(S-5)	
⑥	5	Intermediate Gear B	J3-1	(L-2)	Gear Alignment
⑦	4,5,6	Main Cam Gear	J3-1	Main Cam Push Nut	Gear Alignment
⑧	4	Center Clutch Unit	J4-1	(W-1)	
⑨	4,8	Changing Gear Spring	J4-1	-	
⑩	4,8,9	Changing Gear	J4-1	-	
⑪	4,8,9,10	Idler Arm Unit	J4-1	-	
⑫	----------	Reel Gear	J5-1	2(L-3)	
⑬	4,5,6,7,8,9,10	Main Rod	J5-1	(W-2), (L-4)	Gear Alignment
⑭	----------	Stopper Angle	J6-1	(S-6)	
⑮	4,5,14	Capstan Rotor Unit	J6-1	-	
⑯	4,5,14,15	Oil Seal	J6-1	-	
⑰	4,5,14,15	Capstan Stator C.B.A.	J6-1	P2503, 2(S-7)	
⑱	----------	MR Head	J6-1	(S-8), Unsolder	MR HEAD GAP Adjustment
⑲	4,8,9,10,13	T Loading Arm Unit	J7-1	-	Gear Alignment
⑳	4,5,6,7,8,9,10,13,19	S Loading Arm Unit	J7-1	-	Gear Alignment
㉑	----------	T Brake Unit	J8-1	-	
㉒	----------	Tension Control Arm Unit	J8-1	3(L-5)	
㉓	21	T Reel Table	J8-1	-	
㉔	22	S Reel Table	J8-1	-	
㉕	22	Tension Arm Unit	J8-1	2(L-6), (P-1), (P-2)	
㉖	22,25	Loading Post Base-T Unit	J9	-	P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment
㉗	22,25	Loading Post Base-S Unit	J9	-	
㉘	----------	Opener Piece	J10-1	2(L-7)	
㉙	4,5,6,7	Drive Rack Arm	J10-1	-	
㉚	28	Pinch Arm Unit	J10-1	(C-1)	
㉛	28,30	P5 Arm Unit	J10-1	-	
㉜	5,6,28	Intermediate Gear A	J10-1	-	Gear Alignment
㉝	----------	Motor Block Unit	J11-1	2(S-9)	
㉞	----------	Audio Control Head Unit	J11	(S-10)	TAPE INTERCHANGEABILITY Adjustment
㉟	5,6,28,30,32,33	Lift Gear	J11	-	
㊱	4,5,14,15,33	Capstan Holder Unit	J11	3(S-11)	
㊲	22,25	Tension Arm Boss	J11	(L-8)	

A B C D E F

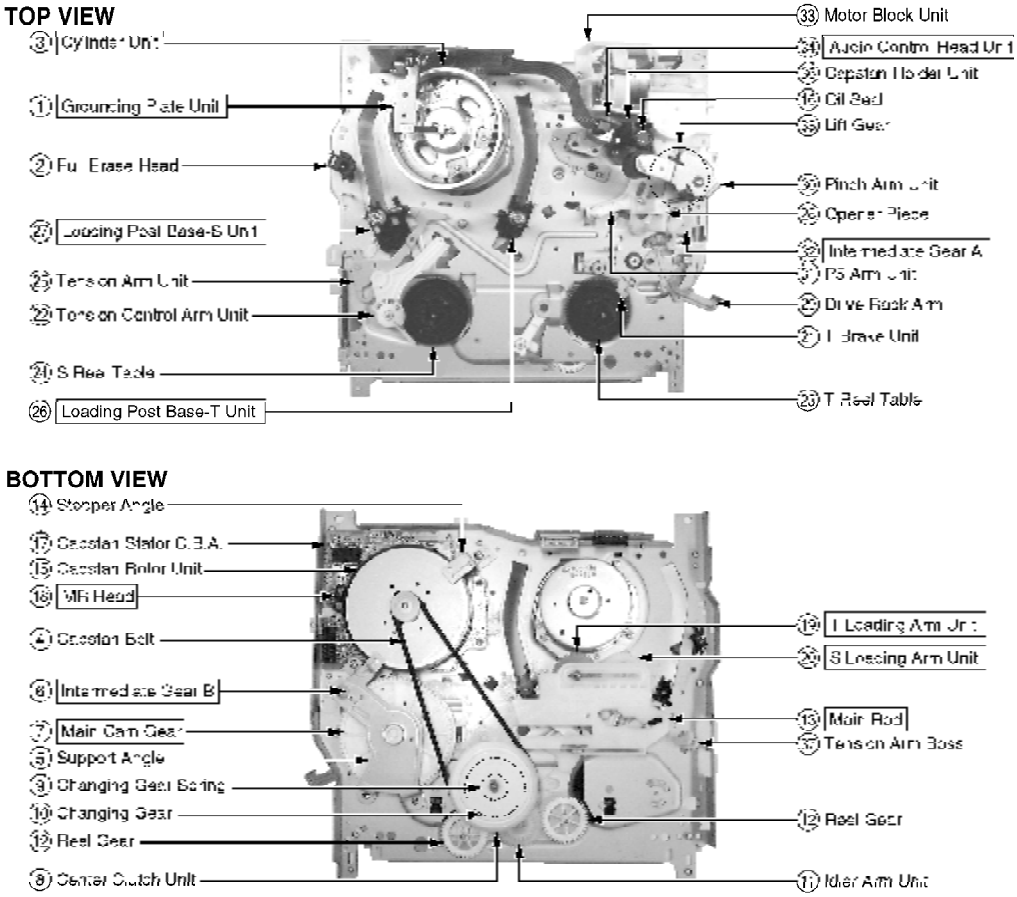
How to read chart shown above:
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)
F: Alignment/Adjustment which is required when installing or replacing each Parts.

CAUTION:
Removed Cut Washer is not reusable.
If removed, install a new one.

5.2.2. Inner Parts Location

Note: BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

Fig. J1-1

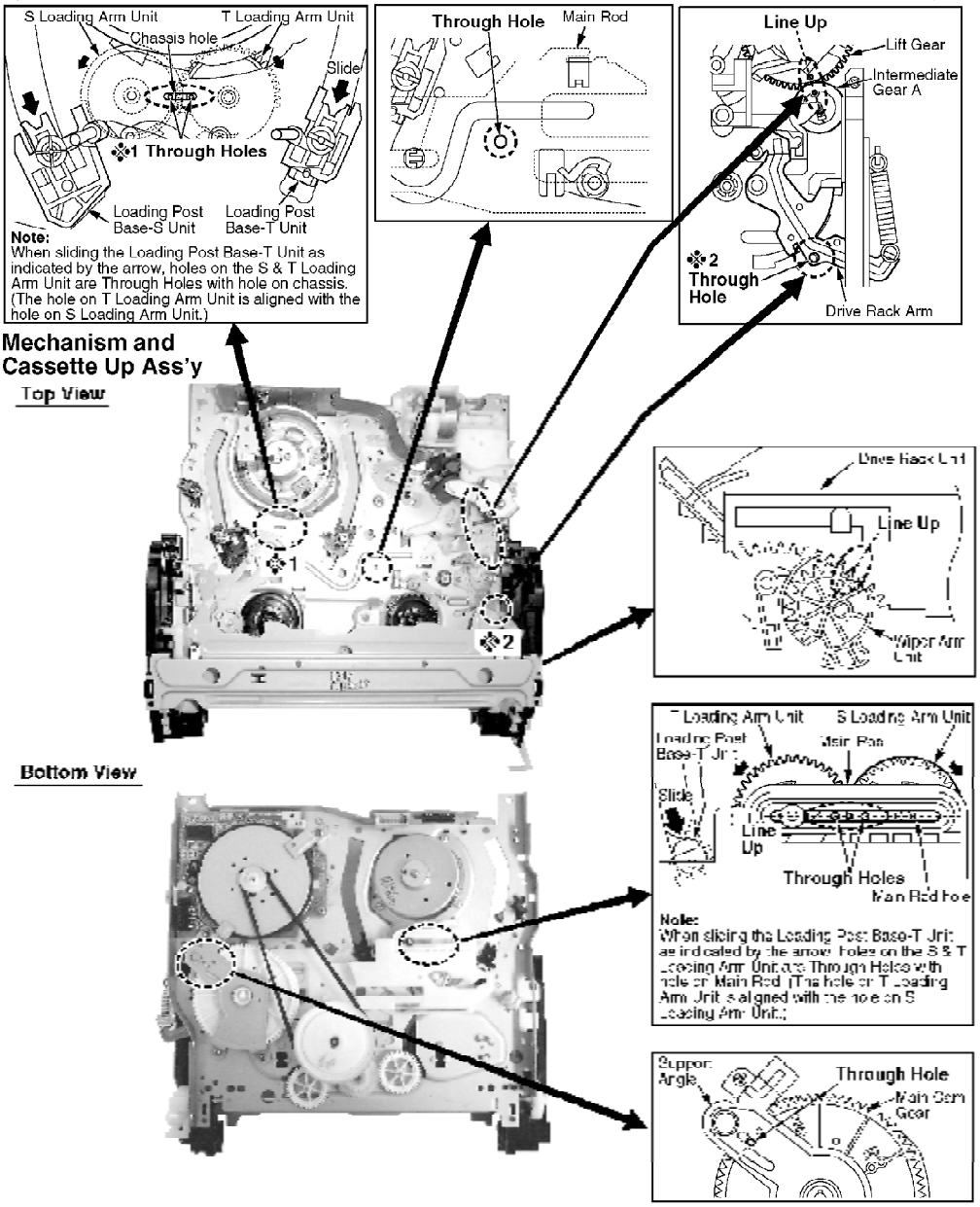


5.2.3. EJECT Position Confirmation

Fig. J1-2

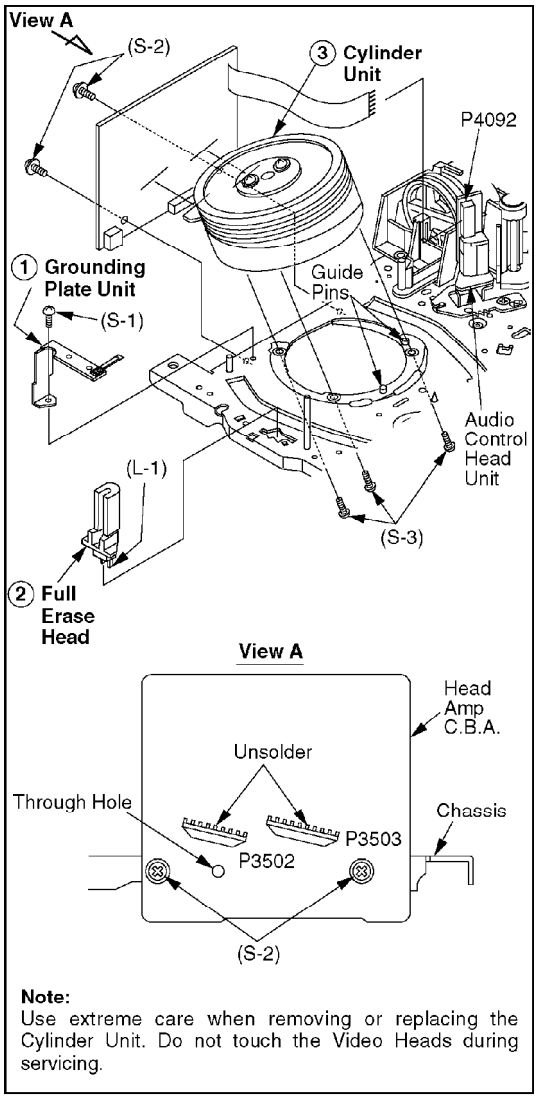
Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

By using alignment points ✣1 for the S & T Loading Arm Units, and ✣2 for the Main Cam Gear, It is possible to confirm each alignment point from the top side, even though they are located on the bottom side of the mechanism chassis.



5.2.4. Grounding Plate Unit, Full Erase Head, and Cylinder Unit

Fig. J2-1



5.2.4.1. Reassembly Notes

1. Adjustment of Grounding Plate Unit

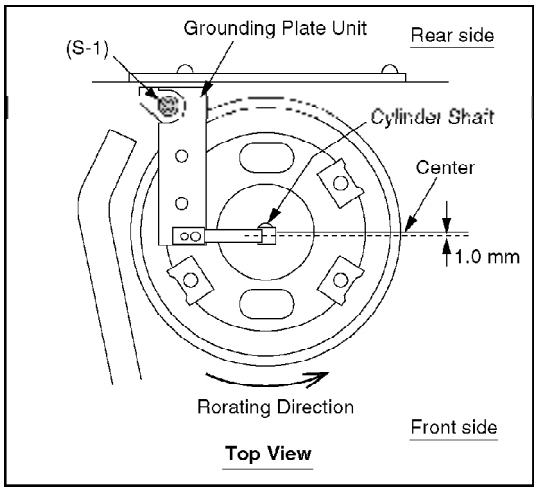
A. After installing, make sure that the Grounding Plate Unit, on the top side of mechanism chassis, is positioned on the front side of the Cylinder shaft so that the center line of the plateis just less than 1.0 mm measured from the center of the Cylinder shaft.

If required, adjust the plate position by loosening Screw (S-1).

Never install the Grounding Plate Unit on the rear side of the Cylinder shaft.

Incorrect positioning will cause cylinder buzz.

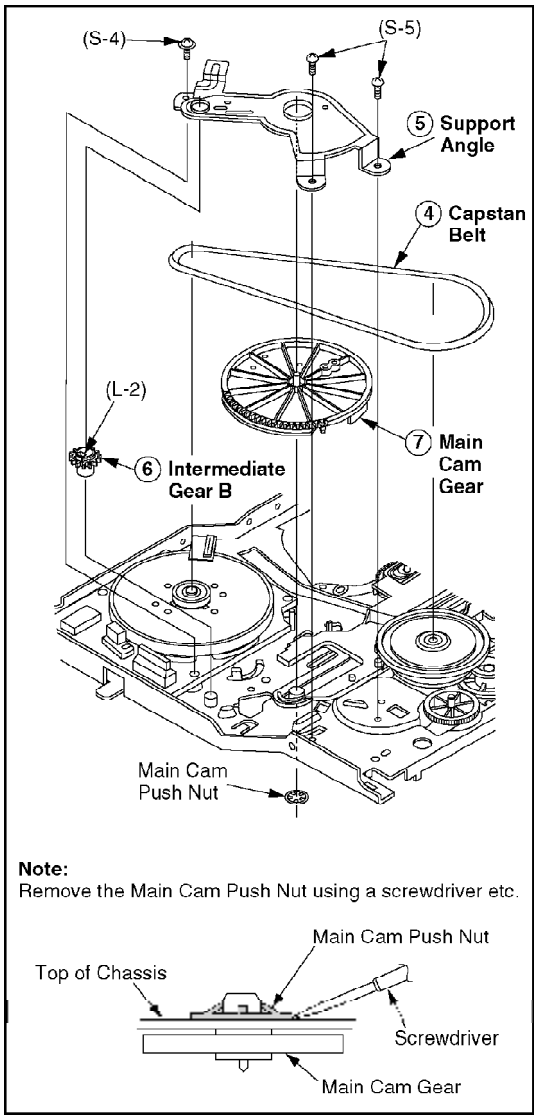
Fig. J2-2



2. After replacing the Cylinder Unit, clear the Total lapsed time with Cylinder rotation (hour) to 0. Refer to "USAGE SCREEN MODE" in SERVICE NOTES.

5.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear

Fig. J3-1



5.2.5.1. Reassembly Notes

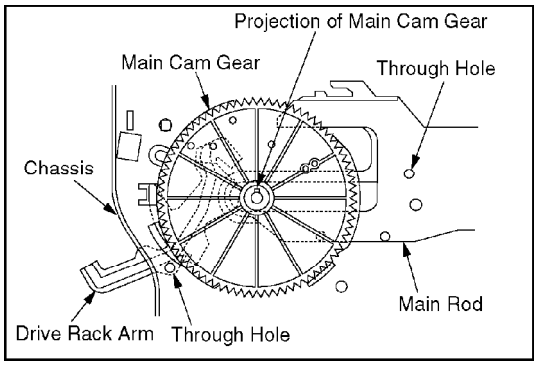
1. Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod

A. Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.

B. Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.

C. Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.

Fig. J3-2

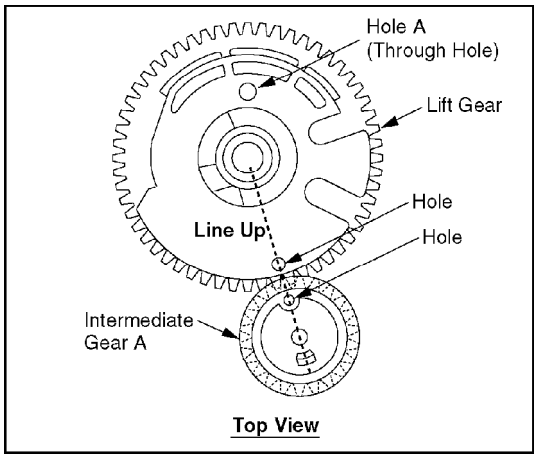


2. Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A

A. Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.

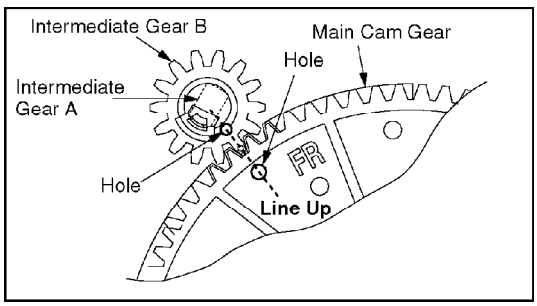
B. Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

Fig. J3-3



C. Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.

Fig. J3-4

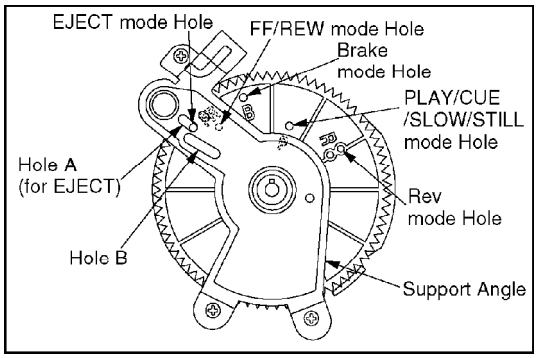


3. Holes on Main Cam Gear

A. The EJECT mode Hole on Main Cam Gear should be a Through

Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on SupportAngle in each mode.

Fig. J3-5



4. Main Cam Gear Kit

A. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).

Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.

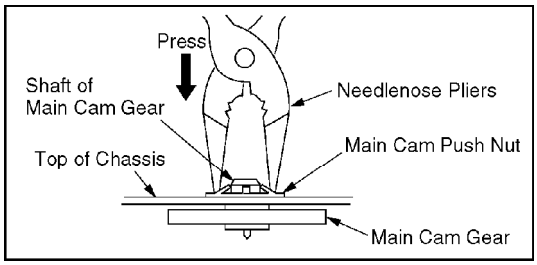
However, Main Cam Push Nut is available separately as a replacement part.

5. Installation of Main Cam Gear and Main Cam Push Nut

A. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, installall new parts.

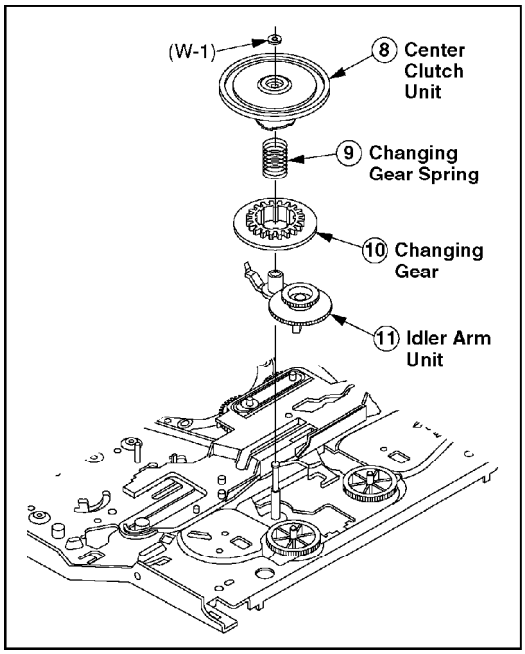
Fig. J3-6



6. The Main Cam Push Nut is not reusable. Install a new one.

5.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

Fig. J4-1

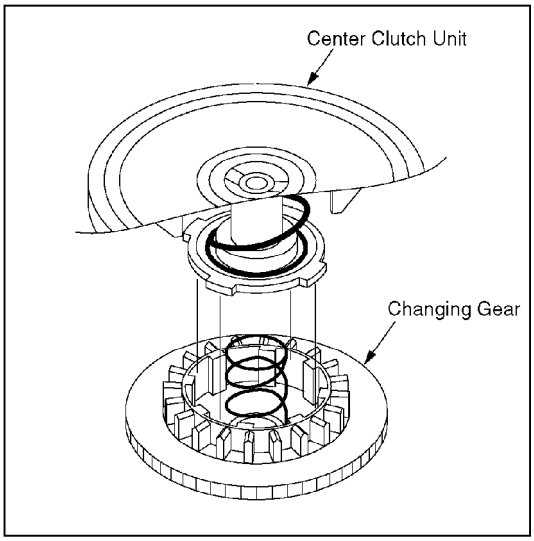


5.2.6.1. Reassembly Notes

1. Installation of Center Clutch Unit

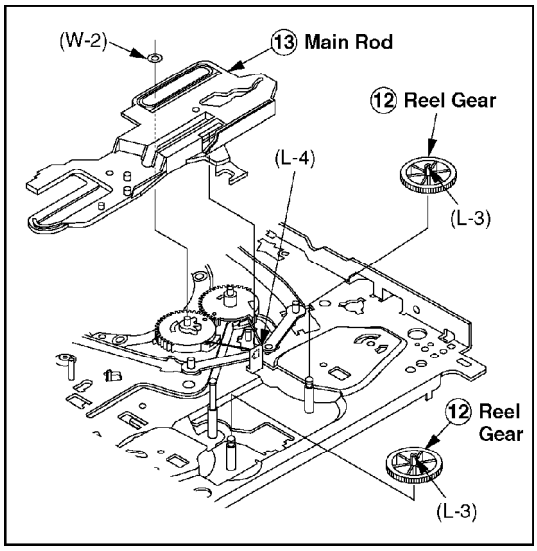
A. Fit the Center Clutch Unit into the Changing Gear.

Fig. J4-2



5.2.7. Reel Gear and Main Rod

Fig. J5-1

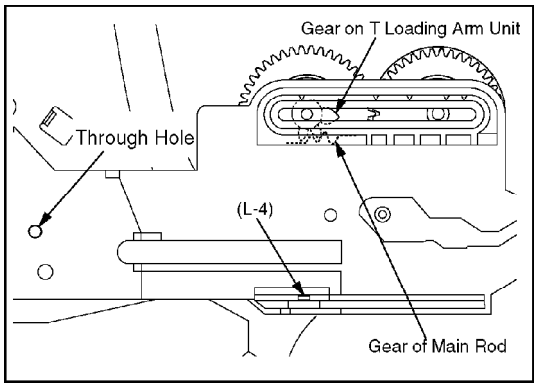


5.2.7.1. Reassembly Notes

1. Alignment of Main Rod and T Loading Arm Unit

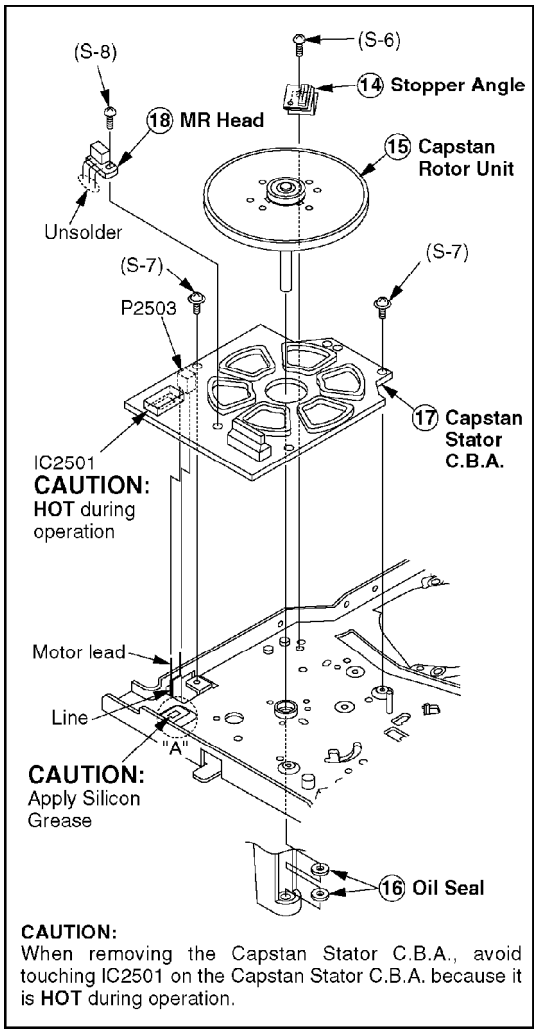
A. Align the Gear of T Loading Arm Unit with Gear of Main Rod. Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.

Fig. J5-2



5.2.8. Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., and MR Head

Fig. J6-1



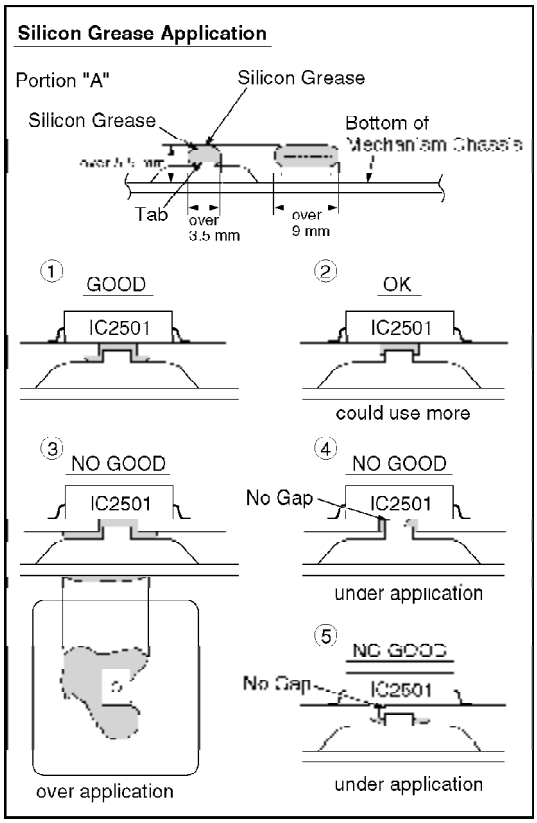
5.2.8.1. Reassembly Notes

1. Application of Silicon Grease

CAUTION:

When installing the IC2501 (AN3845SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

Fig. J6-2

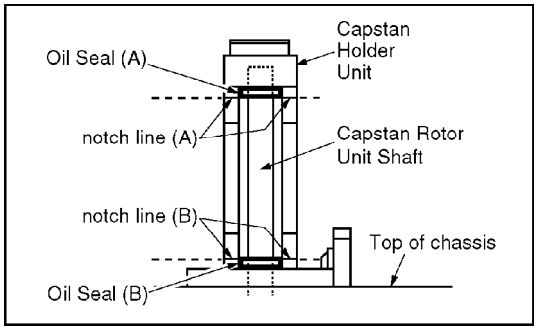


2. Installation of Capstan Rotor Unit and Oil Seal

A. Install the 2 Oil Seals into the Capstan Holder Unit. Then, insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit so that shaft passes through 2 Oil Seals. Be carefulnot to scratch the Shaft or Capstan Holder Unit.

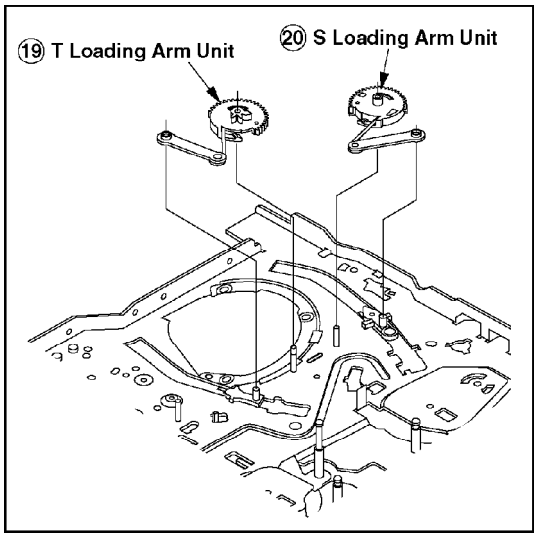
B. Align the bottom of Oil Seal (A) with notch line (A). Align the top of Oil Seal (B) with notch line (B).

Fig. J6-3



5.2.9. T Loading Arm Unit and S Loading Arm Unit

Fig. J7-1



5.2.9.1. Reassembly Notes

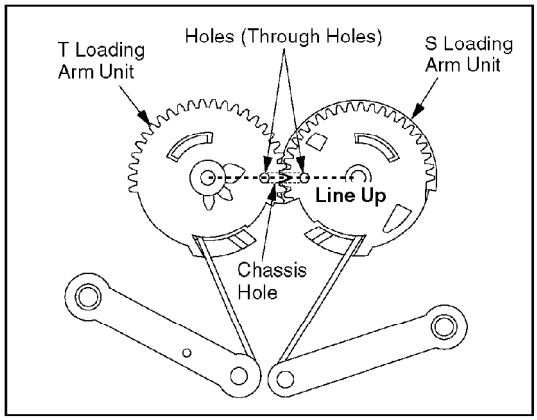
1. Alignment of T Loading Arm Unit and S Loading Arm Unit

A. Install the S Loading Arm Unit onto the chassis.

B. Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.

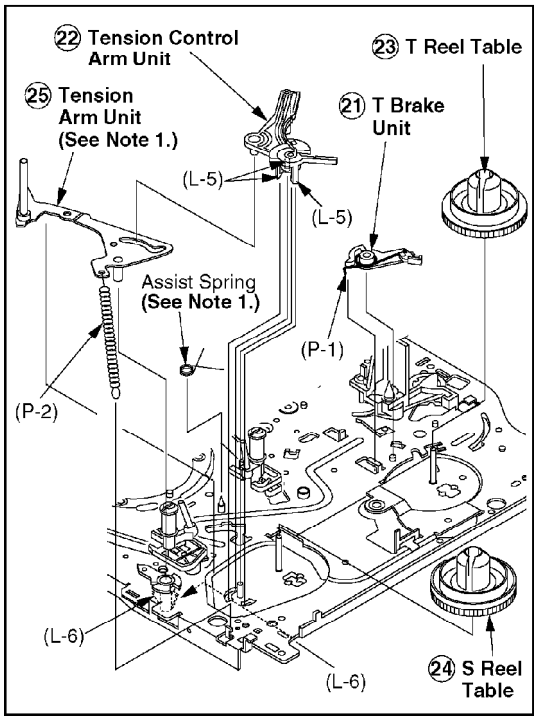
C. Confirm that the holes on the S& T Loading Arm Unit are Through Holes with hole on chassis.

Fig. J7-2



5.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

Fig. J8-1



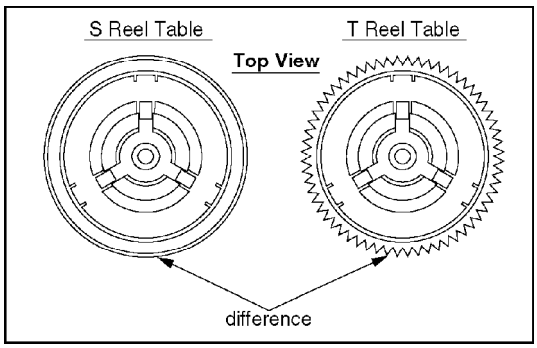
Note:

1. Only for early products; the Assist Spring is used.
When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.

5.2.10.1. Reassembly Notes

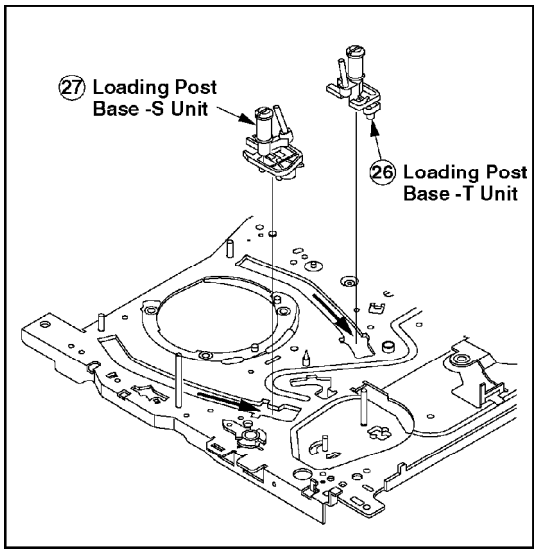
1. How to distinguish between S Reel Table and T Reel Table

Fig. J8-2



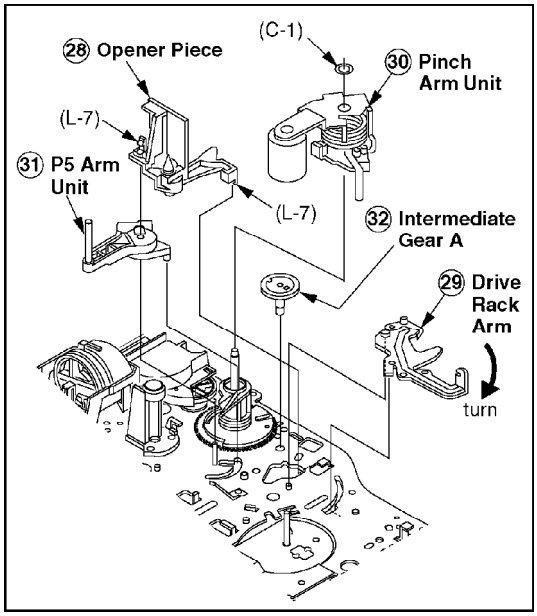
5.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

Fig. J9



5.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

Fig. J10-1



5.2.12.1. Reassembly Notes

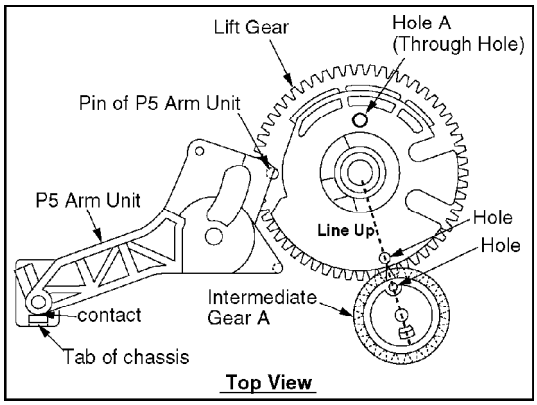
1. Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit

A. Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.

B. Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

C. Install the P5 Arm Unit so that it contacts with the tab of chassis.

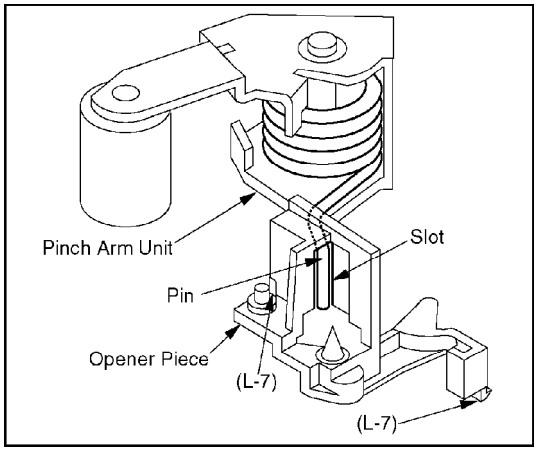
Fig. J10-2



2. Installation of Opener Piece

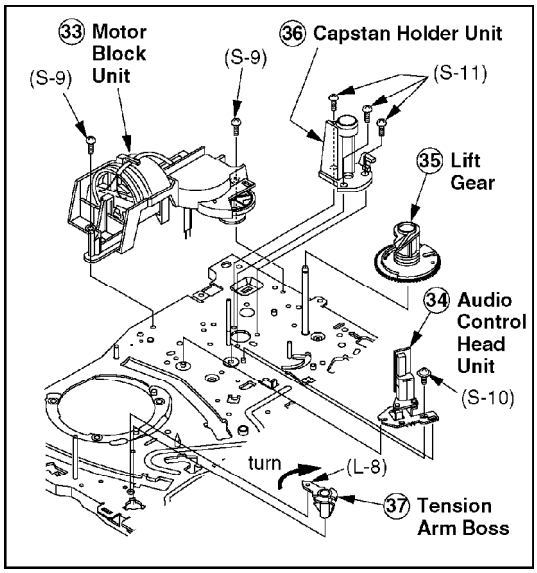
A. Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit

Fig. J10-3



5.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear, Capstan Holder Unit, and Tension Arm Boss

Fig. J11



5.3. CASSETTE UP ASS'Y SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

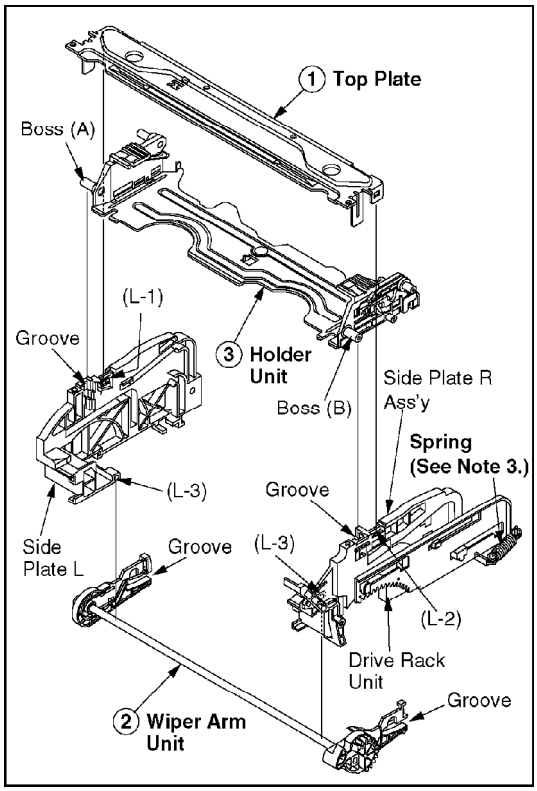
Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	----------	Top Plate	K1-1	(L-1), (L-2)	
②	1	Wiper Arm Unit	K1-1	2(L-3)	Gear Alignment
③	1,2	Holder Unit	K1-1	-	
④	----------	Opener Lever	K2	2(L-4)	
⑤	1,2,3,4	Drive Rack Unit	K2	-	
A	B	C	D	E	F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)
F: Alignment/Adjustment which is required when installing or replacing each Parts.

5.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

Fig. K1-1



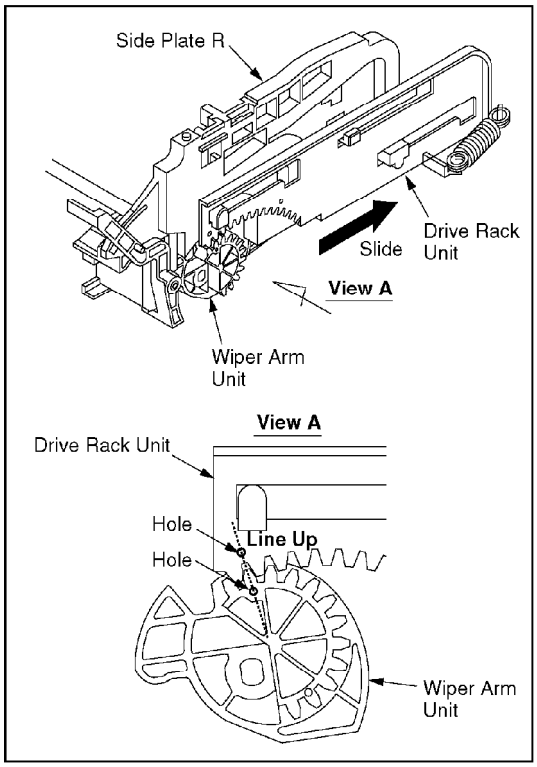
5.3.1.1. Reassembly Notes

1. Alignment of Wiper Arm Unit and Drive Rack Unit

A. Slide the Drive Rack Unit to the far right as indicated by the arrow.

B. Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.

Fig. K1-2



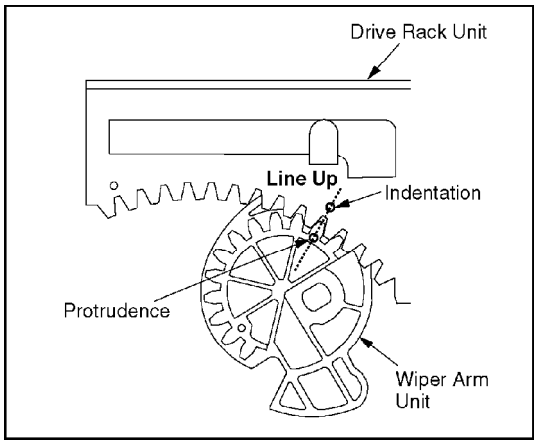
2. Installation of Holder Unit

A. Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.

B. Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.

C. Finally, in the EJECTPosition, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.

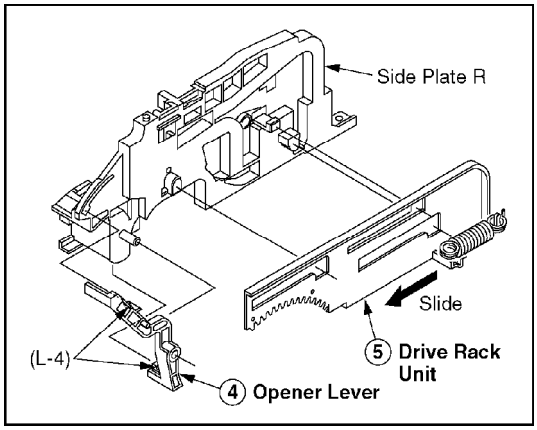
Fig. K1-3



3. Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.

5.3.2. Opener Lever and Drive Rack Unit

Fig. K2



6. ADJUSTMENT PROCEDURES

6.1. SERVICE FIXTURES AND TOOLS

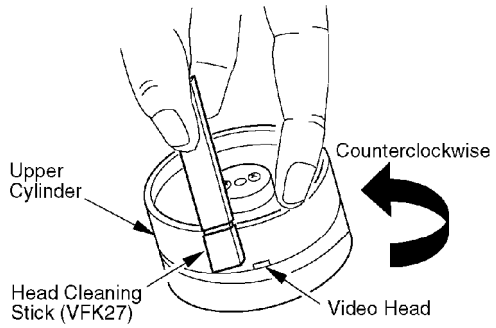
VFMS0003H6 VHS Alignment Tape Video: Color Bar & Monoscope Audio: 6kHz(MONO)	Back Tension Meter (Made in USA., Purchase Locally)	VFK27 Head Cleaning Stick
VFK1301 Silicon Grease	VFKS0081 Grease	VFK0329 Post Adjustment Driver
VFK0330 H-Position Adjustment Driver		

6.2. MECHANICAL ADJUSTMENT

6.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. **While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.**
   When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

Fig. M1



Note:

A. Do not rub vertically or apply excess pressure to the Video Heads.
Do not turn the Upper Cylinder Unit clockwise while cleaning.

B. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

6.2.2. ADJUSTMENT PROCEDURES BACK TENSION CONFIRMATION

Purpose:

To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.

Symptom of Misadjustment:

1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.
2) If the tape tension is too high, the tape will soon be damaged.

Equipment Required:

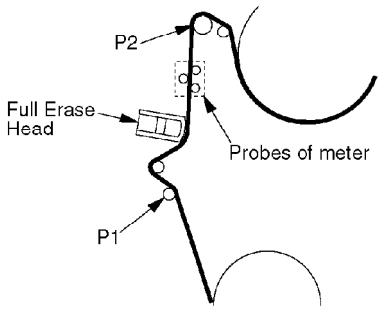
Back Tension Meter (Made in U.S.A., Purchase Locally)
VHS Cassette Tape (120-Minute Tape)

Specification:

20 gf±2.5 gf
(0.196 N±0.025 N)

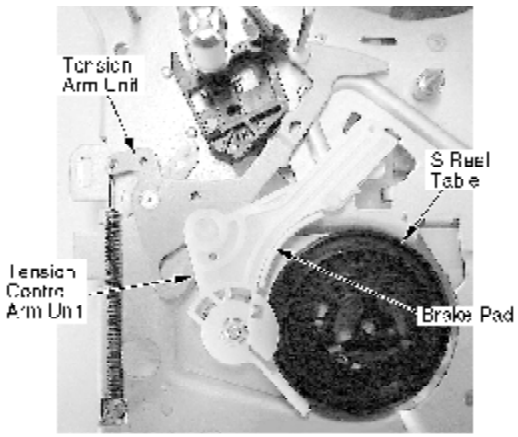
1. **Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.**
2. **Insert a Tension Meter into tape path and measure the back tension.**

Fig. M2-1



3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.
After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.

Fig. M2-2



Note:

A. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.

B. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

6.2.2.1. MR HEAD GAP ADJUSTMENT

Purpose:

To properly pick up the FG Signal.

Symptom of Misadjustment:

If the FG Signal is not properly picked up, Servo Operation cannot be achieved.

Equipment Required:

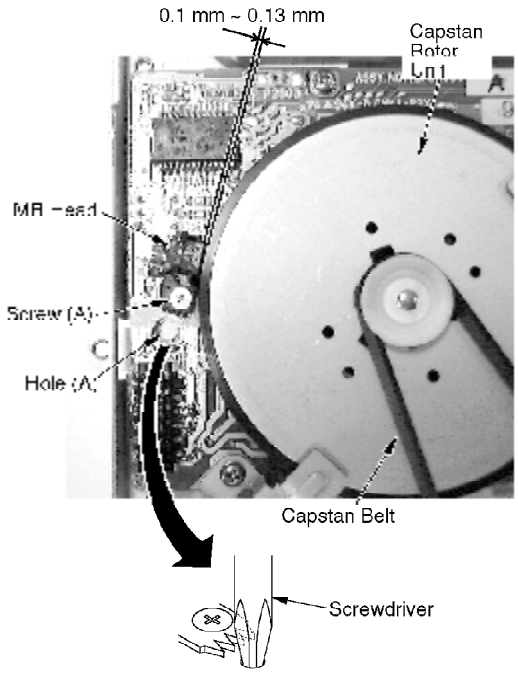
Oscilloscope

Specification:

0.1 mm ~ 0.13 mm

1. **Remove the VCR Chassis Unit and then place it upside down.**
2. **Remove the Main C.B.A.**
3. **Slightly loosen Screw (A). Then set the Screwdriver (Phillips Driver) into the Hole (A). Turn the screwdriver clockwise until the MR Head touches the rotor. Then turn it slightly counterclockwise to make theclearance as specified.**
4. **Tighten Screw (A).**
5. **Reinstall the Main C.B.A.**

Fig. M3-1



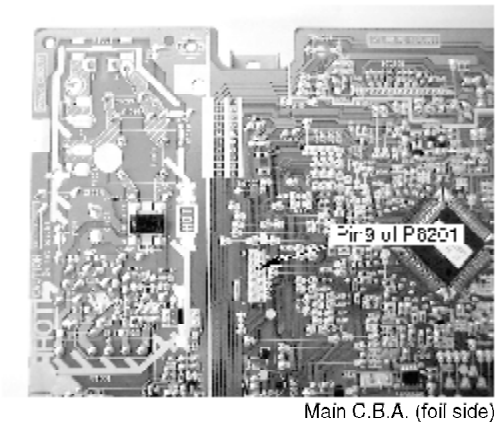
Note:

Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).

Confirmation of Signal Level

1. Place the unit in Service Position (2). Refer to "SERVICE POSITION " in SERVICE NOTES.
2. Supply a Video Signal to the video input jack.
3. Insert a cassette tape and place the unit in SLP recording mode.
4. Connect the oscilloscope to Pin 9 of P6201 on the Main C.B.A. Confirm that the signal level is greater than 20 mV [P-P].

Fig. M3-2



Main C.B.A. (foil side)

6.2.2.2. TAPE INTERCHANGEABILITY ADJUSTMENT

Note:

To perform these adjustment/confirmation procedures, enter the Tracking center mode.

Equipment Required:

Dual Trace Oscilloscope
VHS Alignment Tape (VFMS0003H6)
Post Adjustment Driver (VFK0329)
H-Position Adjustment Driver (VFK0330)

6.2.2.2.1. ENVELOPE OUTPUT ADJUSTMENT

The height of the P2 and P3 Posts replacement part is preadjust at the factory.

Purpose:

To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:

If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Equipment Required:

Post Adjustment Driver (VFK0329)

1. **Insert the alignment tape.**
2. **Press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.**
   The power comes on and the unit goes into service mode.
3. **Play back the alignment tape.**
4. **To enter Tracking center mode, press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor.**
5. **Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.**
6. **Confirm that the RF envelope is flat enough (V1/V-max. is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat (V1/V-max.is 0.7 or more) as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.**

CAUTION:

Overtightening P2 and P3 posts may cause the threads to strip.

Note:

It will be possible to confirm Step 6 according to following steps.

A. Release the Tracking center mode.

B. Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

Fig. M4-1

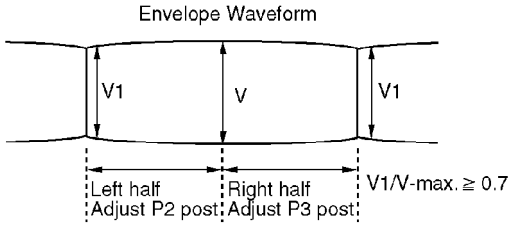
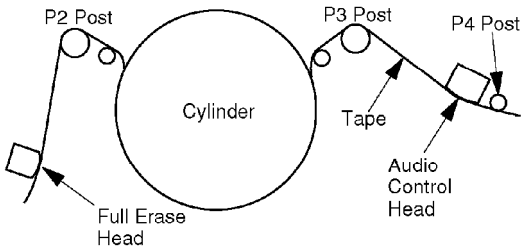
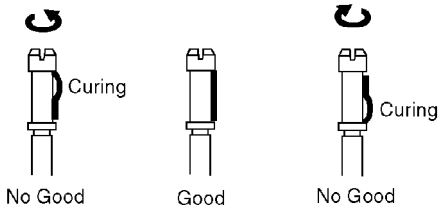


Fig. M4-2



7. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.

Fig. M4-3



8. To release from Tracking center mode, press PLAY or STOP button.

6.2.2.2.2. AUDIO CONTROL HEAD TILT ADJUSTMENT

Purpose:

To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

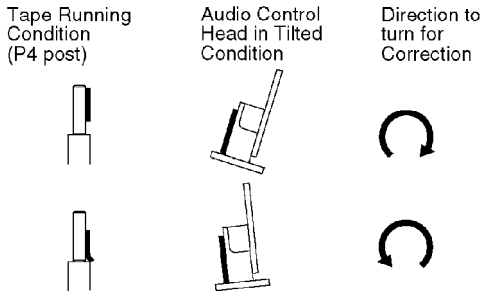
Symptom of Misadjustment:

If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.

2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

Fig. M5



6.2.2.2.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

Purpose:

To be sure the tape runs properly along the Control Head.

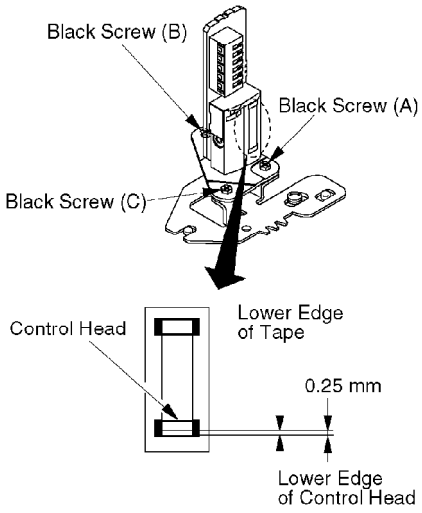
Symptom of Misadjustment:

If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. **Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.**
2. **If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.**

Fig. M6



6.2.2.2.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

Purpose:

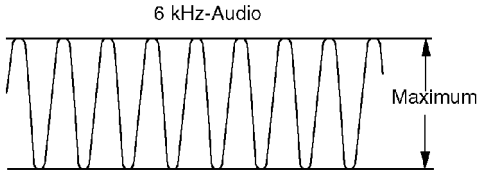
To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment:

If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. **Connect the oscilloscope to the audio output jack on the rear side of the deck.**
2. **Play back the 6 kHz Monaural Audio portion of the alignment tape.**
3. **Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.**

Fig. M7



4. **Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).**

6.2.2.2.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose:

To adjust the Horizontal Position of the Audio Control Head.

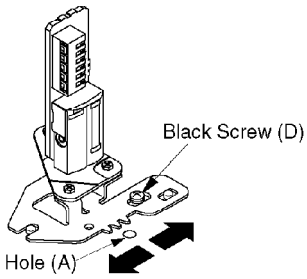
Symptom of Misadjustment:

If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. **Insert the alignment tape.**
2. **Press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.**
   The power comes on and the unit goes into service mode.
3. **Play back the alignment tape.**
4. **To enter Tracking center mode, press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor.**
5. **Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.**
6. **Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the**

fixture either clockwise or counterclockwise so that the envelope is at maximum.

Fig. M8



7. Tighten Black Screw (D).
8. To release from Tracking center mode, press PLAY or STOP button.

Note:

Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

6.3. ELECTRICAL ADJUSTMENT

6.3.1. EVR (Electronic Variable Resister) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept.
The PG SHIFTER ADJUSTMENT is adjusted by using " On Screen Display " and the remote control instead of adjusting mechanical controls (VR).

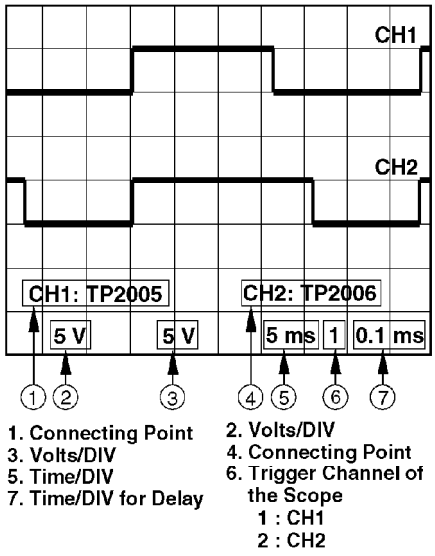
6.3.2. TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. Isolation Transformer (Variable)
3. VHS Alignment Tape (VFMS0003H6)
4. TV monitor

6.3.3. HOW TO READ THE ADJUSTMENT PROCEDURES

Fig. E1



6.3.4. PG SHIFTER ADJUSTMENT

Purpose:

Determine the Video Head Switching Point during Playback.

Symptom of Misadjustment:

May cause Head Switching Noise and/or Vertical Jitter.

Test Point:

TP3001 (Main C.B.A.),
TP6205 (Main C.B.A.)

Specification:

T= 6 H±0.5 H (0.38 ms±0.03 ms)

Mode:

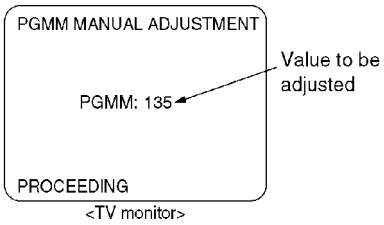
SP Playback

Equipment:

Oscilloscope,
VHS Alignment Tape (VFMS0003H6),
TV monitor

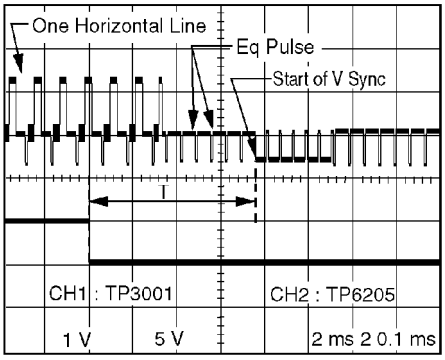
1. **Insert the VHS Alignment Tape and play back in SP mode.**
2. **Press VCR/TV button on the unit and 3 button on the remote control together to enter EVR PG SHIFTER ADJUSTMENT Mode. Then, "PGMM MANUAL ADJUSTMENT" menu will appear on the TV monitor.**

Fig. E2-1



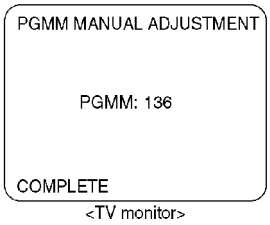
3. **Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Used TP6205 as a trigger.**
4. **Adjust value so that the trailing edge of the head switching pulse is placed 6 H±0.5 H (0.38 ms±0.03 ms) before the start of the vertical sync pulse by pressing CH UP and CH DOWN buttonson the remote control.**

Fig. E2-2



5. **After adjustment is completed, press REC button on the remote control. Then " COMPLETE " will appear on the TV monitor and adjusted value will be written to Memory IC (IC6005).**

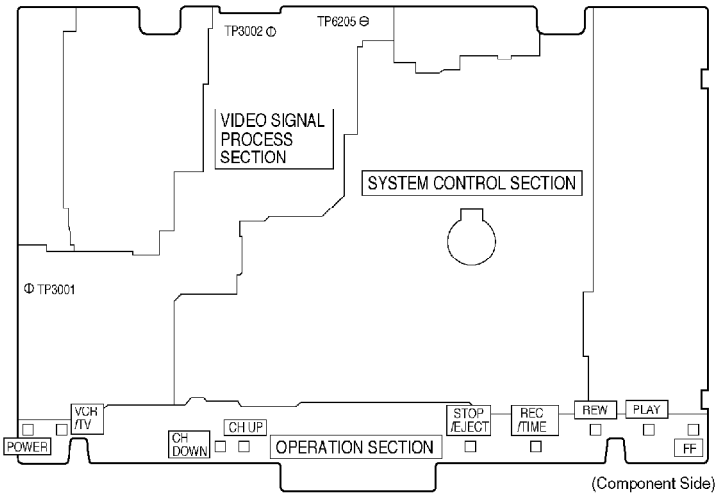
Fig. E2-3



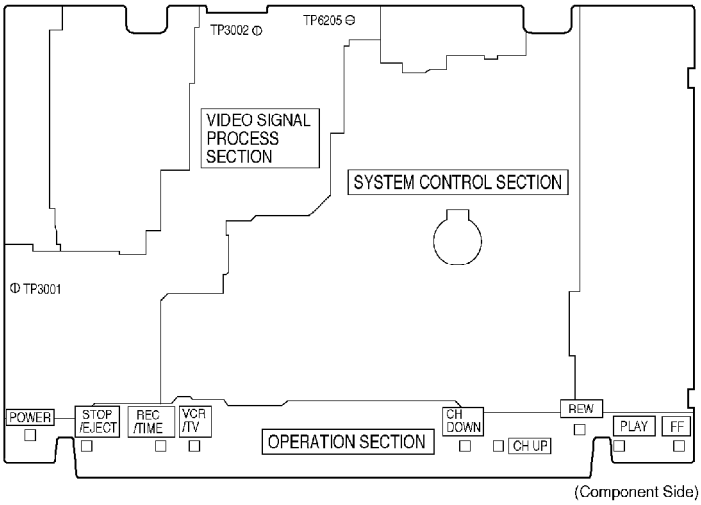
6. **Press STOP button on the remote control to release from EVR PG SHIFTER ADJUSTMENT MODE.**

6.4. TEST POINTS AND CONTROL LOCATION

Main C.B.A. (A, C)



Main C.B.A. (B, D, E, F)



FUNCTION OF IMPORTANT TEST POINTS	
TP3001	Video Signal to Jack
TP3002	REC/PB Video envelope signal
TP6205	Head SW.

Test Point Information

ⓘ Test Point with a jumper wire across a hole in the P.C.B.

7. SCHEMATIC DIAGRAMS

7.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

7.2. MAIN I (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM

7.3. MAIN II (SIGNAL PROCESS/AUDIO) SCHEMATIC DIAGRAM

7.4. MAIN III (POWER SUPPLY) SCHEMATIC DIAGRAM

7.5. MAIN IV (Hi-Fi) SCHEMATIC DIAGRAM (E, F)

7.6. MAIN V (OPERATION) SCHEMATIC DIAGRAM

7.7. MAIN VI (CYLINDER DRIVE/ADVANCE) SCHEMATIC DIAGRAM

7.8. HEAD AMP (A)/ AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

7.9. HEAD AMP (B, C, D)/ AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

7.10. Hi-Fi AUDIO/VIDEO HEAD AMP (E, F)/ AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

7.11. CAPSTAN STATOR SCHEMATIC DIAGRAM

7.12. INTERCONNECTION SCHEMATIC DIAGRAM

7.13. SIGNAL WAVEFORM

7.14. VOLTAGE CHART

8. CIRCUIT BOARD LAYOUT

8.1. MAIN C.B.A. (A, C)

8.2. MAIN C.B.A. (B, D, E, F)

8.3. HEAD AMP C.B.A. (A, B, C, D)/ Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. (E, F)/ CAPSTAN STATOR/ AUDIO CONTROL HEAD P.C.B.

9. BLOCK DIAGRAMS

9.1. POWER SUPPLY BLOCK DIAGRAM

9.2. VIDEO SIGNAL PATH BLOCK DIAGRAM

9.3. AUDIO SIGNAL PATH BLOCK DIAGRAM

9.4. Hi-Fi AUDIO SIGNAL PATH BLOCK DIAGRAM

9.5. SYSTEM CONTROL BLOCK DIAGRAM

9.6. SERVO BLOCK DIAGRAM

9.7. OPERATION BLOCK DIAGRAM

10. EXPLODED VIEWS

10.1. MECHANISM (TOP) SECTION

MAIN C.B.A.

(PVQ-V200,PV-V4020,
PV-V4520,PV-V4540)

AC CORD

P1001
1
P1001
2

AC CORD

1
2

(VHQ-400,VHQ-40M)

F1001
125V/1.6A

L1001
LINE
FILTER

D1001
FULL-WAVE
RECTIFIER

T1001

D1002

Q1001
(SWITCHING)

Q1002
(SWITCHING CONTROL)

TP1001

D1003

D1016

C1023

D1005
RECTIFIER

C1011
SMOOTHING
CIRCUIT

D1006
RECTIFIER

C1012, C1013
SMOOTHING
CIRCUIT

PR1002

D1015
(OVERVOLTAGE
PROTECTOR)

D1080
RECTIFIER

Q1080
SMOOTHING
CIRCUIT

PR1080

J1001

NOT USED

D1007
RECTIFIER

C1014
SMOOTHING
CIRCUIT

TP1004

D1008
RECTIFIER

SMOOTHING CIRCUIT

C1016

C1017

PR1001

D1009
RECTIFIER

C1019
SMOOTHING
CIRCUIT

PR1003

IC1001 (ERROR VOLTAGE DET)

Q1003, Q1004, Q1005
OUTPUT VOLTAGE
DETECTOR

TP1080

Q1080
+22V
REGULATOR

D1082

TP1081

SW+22V

Q1081

(FROM IC6001(84))
SW+23V ON (H)

NOT USED

Q1082
+14V
REGULATOR

D1086

Q1083

(FROM IC6001(86))
SW+14V ON (H)

TP1002

UNSW+33V

UNSW+14V

D1017

TP1003

UNSW+14V

Q1051
+12V
REGULATOR

TP1058

SW+12V

Q1052

(FROM IC6001(83))
POWER ON(L)

Q1071
-5V
REGULATOR

SW-5V

Q1070
SWITCHING
POWER ON-ON

(WITHOUT
Hi-Fi AUDIO
/WITH FRONT
A/V JACK)

TP1005

TP1050

Q1053
+5V
REGULATOR

SW+5V
(VIDEO)

UNSW+5V
(SYS. CTL)

TP1006

LED+5V

TP1007

TP1008

(TO IC6001(1))
POWER DOWN(L)

MAIN C.B.A.

REC VIDEO SIGNAL

PB VIDEO SIGNAL

UHF/VHF TUNER/TV DEMODULATOR UNIT

RF

17 VIDEO VIDEO 2

J6003

(WITH 2 HEAD)

(FROM IC6001(23)) HEAD SW PULSE

(WITH 4 HEAD)

(FROM IC6001(98)) ROTARY SW

IC3101

CCD 1H DELAY

5 4

(TO IC6001(78)) ENVELOPE VOLTAGE

IC3001 (VIDEO PROCESS)

29 27 49 40

AT ENVELOPE DETECT

VIDEO IN 1

20 TUNER

18

16 LINE 1

LINE 2

REC

PB

REC/PB LUMINANCE SIGNAL PROCESS

REC REC PB PB-Y

PB REC-Y

46 45 TP3002

Y/C MIX

41

P3551 1

VIDEO IN 2

REC

PB

REC/PB CHROMINANCE SIGNAL PROCESS

REC REC-C

PB PB-C

34

REC PB

Y/C MIX ART V/H MIX

I²C CONTROL

13 25 10 12 1 3 7 8

(FROM IC6001(24)) V-LOCK PULSE

1 8 IC3101

CCD 1H DELAY

(TO/FROM IC6001(17)) I²C SERIAL DATA

(FROM IC6001(18)) I²C SERIAL CLOCK

IC3201

1 CCD 1H DELAY 8

Q3202 AMP

(WITH ADVANCE)

NOT USED

Q3875

(TO IC3801(33)) VIDEO

BUFFER

IC6001

49 OSD CHARACTER MIX 47

Q3001 BUFFER

Q3201 PHASE COMPENSATOR

R3205 CNR GAIN

R3204 CNR PHASE

(WITH CNR)

NOT USED

TP3001

VIDEO OUT

HEAD AMP C.B.A. (FOR 4HEAD MODEL)

IC3501 (HEAD AMP)

TP3501

SP 18

LP/SLP 16

P3501 1

30 REC

PB

SP

LP/ SLP

L R

4 6 13 11

P3503 6 P3503 5 P3503 4 P3503 1 P3503 2 P3503 3

VIDEO SP L HEAD

VIDEO SP R HEAD

VIDEO LP/SLP L HEAD

VIDEO LP/SLP R HEAD

31 32 1

(FROM IC6001(23)) HEAD SW PULSE

(FROM IC6001(99)) HEAD AMP SW

(FROM IC6001(62)) PB(L)

HEAD AMP C.B.A. (FOR 2HEAD MODEL)

IC3501 (HEAD AMP)

TP3501

18

P3501 1

30 REC

PB

L R

6 4

P3503 1 P3503 2 P3503 3

VIDEO L HEAD

VIDEO R HEAD

31 1

(FROM IC6001(23)) HEAD SW PULSE

(FROM IC6001(62)) PB(L)

REC AUDIO SIGNAL
PB AUDIO SIGNAL

MAIN C.B.A.

UHF/VHF TUNER/TV
DEMODULATOR UNIT

RF
14 AUDIO
AUDIO 1

(WITHOUT Hi-Fi AUDIO)
C4018
R4018

Q4001
+5V
Q4002
Q4003

IC3001 (AUDIO PROCESS)
56

(WITHOUT
FRONT A/V JACK)
J4002
AUDIO
IN 1
71
73
TUNER
LINE
PB
AGC DET
AGC
REC-OFF
REC AMP
REC-ON
65
MUTE
57
58
PB AMP
60

(WITH FRONT A/V JACK
/WITHOUT Hi-Fi AUDIO)

IC4151
(INPUT SELECT)
LINE1
13
14
AUDIO
IN 2
12
LINE2
11
(FROM IC6001(19))
INPUT SELECT 2

LINE
AMP
I²C
CONTROL
AUDIO
MUTE(H)
69
75
7
8

(TO/FROM IC6001(17))
I²C SERIAL DATA
(FROM IC6001(18))
I²C SERIAL CLOCK
(FROM IC6001(59))
AUDIO MUTE(H)

(WITH Hi-Fi AUDIO)
(FROM IC4201(61))
NORMAL AUDIO
(TO IC4201(62))
NORMAL AUDIO

(TO IC3801(3))
AUDIO
(WITH ADVANCE)
NOT USED

J4003
Q4006
Q4004
DRIVE

AUDIO
OUT
J4001
R4013
(WITHOUT Hi-Fi AUDIO)

BIAS OSC
T4101, Q4101

P6202 3
P6202 1
P3551 3
P3551 4

HEAD AMP C.B.A
P2601 3
P2601 1
P3501 3
P3501 4

P4091 2
P4091 1
P4091 4
P4091 3

AUDIO CONTROL
HEAD UNIT
P4092 2
P4092 1
P4092 4
P4092 3

AUDIO
HEAD
AUDIO
ERASE
HEAD

FULL ERASE HEAD UNIT
P4001 2
P4001 1
PIN 2
PIN 1
FULL
ERASE HEAD

REC AUDIO SIGNAL
PB AUDIO SIGNAL

MAIN C.B.A.

UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
SIF
AUDIO
15
1

(WITH SPATIALIZER)
NOT USED
TO/FROM SPATIALIZER
PIN 1
PIN 3
PIN 5
PIN 7

C4921
FL4901
4.5MHz BPF
3
1

(FROM IC6001(26)) 3.58MHz
(FROM IC3001(79)) 3.58MHz
J4204
J4203
Q4201
BUFFER
R4227

(TO IC6001(82)) MTS MODE
(TO IC6001(60)) AUDIO DEFEAT(H)
(TO IC6001(29)) Hi-Fi PB(H)

IC4201 (Hi-Fi AUDIO PROCESS)
56
45
28
48
MTS/SAP SIGNAL PROCESS
MATRIX
MUTE CONTROL
ENV DETECTOR
AGC DET
AGC AMP
REC AMP

TP4204
AUDIO IN1 R-CH
TP4203
AUDIO IN1 L-CH
TP4202
AUDIO OUT R-CH
TP4201
AUDIO OUT L-CH
AUDIO IN 2 R-CH
AUDIO IN 2 L-CH

(WITHOUT SPATIALIZER)
J4202
J4201

TUNER
LINE1
LINE2
(R-CH)
(L-CH)
9
10
61
53
59
57
14
15
R
L+R
L
MUTE
Hi-Fi
MIX
NORMAL

R-CH Hi-Fi AUDIO SIGNAL PROCESS
L-CH Hi-Fi AUDIO SIGNAL PROCESS

24
21
22
29
30
27

HEAD AMP C.B.A.
P4451 2
P4451 3
P4451 4
P4401 2
P4401 3
P4401 4
P3503 7
P3503 8
P3503 9
Hi-Fi AUDIO L HEAD
Hi-Fi AUDIO R HEAD

AUDIO MUTE(H)
36
62
I²C CONTROL
42
43

(TO IC3001(73)) NORMAL AUDIO
(FROM IC6001(59)) AUDIO MUTE(H)
Q4004 DRIVE
(TO/FROM IC6001(17)) I²C SERIAL DATA
(FROM IC6001(18)) I²C SERIAL CLOCK
(FROM IC3001(69)) NORMAL AUDIO
(FROM IC6001(27)) Hi-Fi HEAD SW PULSE

Q4005
Q4006
Q4007

CAPSTAN STATOR C.B.A.

MAIN C.B.A.

IC2501 (LOADING MOTOR DRIVE)

LOADING MOTOR DRIVE

15 LOADING MOTOR DRIVE

16 LOADING MOTOR DRIVE

19 LOADING MOTOR DRIVE

21 LOADING MOTOR DRIVE

P2502 7 — P6201 7 — 7 LOADING MOTOR FORWARD(H)

P2502 5 — P6201 5 — 6 LOADING MOTOR REVERSE(H)

P2503 2

P2503 1

+ M - LOADING MOTOR

IC6001 (SYSTEM CONTROL MICROCONTROLLER)

VDD 36 — +5V — TP6019

MODE SW POSITION C 95 — TP6018

MODE SW POSITION B 96 — TP6017

MODE SW POSITION A 97

SW6002 (MODE SELECT SWITCH)

PIN NO. OF IC6001 / MODE	A (97)	B (96)	C (95)
FF/REW	H	H	L
BRAKE	L	H	H
PLAY/CUE/SLOW/STILL	L	H	L
REVIEW	H	L	L
STANDBY/STOP	H	L	H
CASSETTE DOWN	L	L	H
EJECT	L	L	L

4 3 2 1

IR DATA 5 — U6302 IR RECEIVER

Q6001,Q6005, Q6006,Q6007

+5V — RESET — 25 RESET

(FROM POWER SUPPLY CIRCUIT) POWER DOWN (L) — 1 POWER DOWN(L)

TP6001

+5V

3 TAKEUP REEL PULSE

4 SUPPLY REEL PULSE

SW+12V

79 TAKEUP PHOTO TR

80 SUPPLY PHOTO TR

SW+5V

D6001 SENSOR LED

IC6002 (TAKEUP REEL SENSOR)

IC6003 (SUPPLY REEL SENSOR)

Q6010 (TAKEUP PHOTO TR)

Q6009 (SUPPLY PHOTO TR)

X6001 (14.3MHz) — OSC — 38 OSC 1 — 37 OSC 2

SW6001 SAFETY TAB SW — 30 SAFETY TAB BROKEN(H)

(TO IC3501(25)) DELAY REC+12V

Q6002 — SW+12V

Q6003 — 28 VIDEO DELAY REC(H)

IC6005 (MEMORY)

5 I²C SERIAL DATA

6 I²C SERIAL CLOCK

I²C SERIAL DATA 17 — (TO/FROM IC3001(8)) I²C SERIAL DATA

I²C SERIAL CLOCK 18 — (TO IC3001(7)) I²C SERIAL CLOCK

(TO/FROM IC4201(43)) I²C SERIAL DATA

(TO IC4201(42)) I²C SERIAL CLOCK

(WITH Hi-Fi AUDIO)

AUDIO CONTROL HEAD UNIT

HEAD AMP C.B.A.

MAIN C.B.A.

CONTROL HEAD

P4092 5 / P4092 6

P4091 5 / P4091 6

P2601 5 / P2601 2

P6202 5 / P6202 2

TP6206

IC6001 (SERVO MICROCONTROLLER)

75 REC CTL AMP

74 PB-ON

NEGATIVE PB CTL SLICER

+5V

1/2 Vcc

72

69

70

TP6207

76 POSITIVE PB CTL SLICER

21 CAP REV(H)/ STOP(M)/ FWD(L)

SELECT

TP6203

67 SCHMIT

COUNT DOWN

68 AMP

TP6209

INTEGRATION

33

TP6201

PG

SELECT

TP6003

ENVELOPE DETECTOR

78

(FROM IC3001(40)) ENVELOPE VOLTAGE

V-LOCK PULSE GENERATOR

23

(TO IC3001(13)) V-LOCK PULSE

CAPSTAN STATOR C.B.A.

CAPSTAN COIL

IC2501 (CAPSTAN MOTOR DRIVE)

Q2501 HALL TRANSIS-TOR 4 3

Q2502 HALL TRANSIS-TOR 6 5

Q2503 HALL TRANSIS-TOR 2 1

POSITION SIGNAL PROCESS

CAPSTAN MOTOR DRIVE 25 24 22

DIFFER-ENTIAL AMP 10 7 12

P2502 4 / P2502 10 / P2502 8

P6201 4 / P6201 10 / P6201 8

IC2505

MR HEAD 2 3 GND

P2502 9 / P6201 9

PWM

CAPSTAN SPEED COMPENSATOR

MIX

CYLINDER/ CAPSTAN PHASE COMPENSATOR

MIX

PWM

CYLINDER SPEED COMPENSATOR

REC CTL / TR MM GENERATOR

TP6205

23

(TO IC3501(1)) HEAD SW PULSE

CYLINDER UNIT

HEAD AMP C.B.A.

IC2601 (CYLINDER MOTOR DRIVE)

HALL IC

CYLINDER MOTOR

P3501 4 / P3501 6 / P3501 3 / P3501 2 / P3501 1

P2601 9 / P2601 7 / P2601 10 / P2601 11 / P2601 12

P6202 9 / P6202 7 / P6202 10 / P6202 11 / P6202 12

7 6 1 2 16

PG/FG PULSE GENERATOR

CYLINDER MOTOR DRIVE

4 9

65 22 34 20

PG/ FG SEPARATOR

HEAD SW SIGNAL GENERATOR

FORCED ACCELERATION

SLOW /STILL CONTROL

CAP TORQUE LIMIT

INTEGRATION

TP6202

(WITH 4 HEAD)

HEAD AMP CONTROL

ROTARY SIGNAL GENERATOR

98

(TO IC3001(49)) ROTARY SW

HEAD AMP SELECT SIGNAL GENERATOR

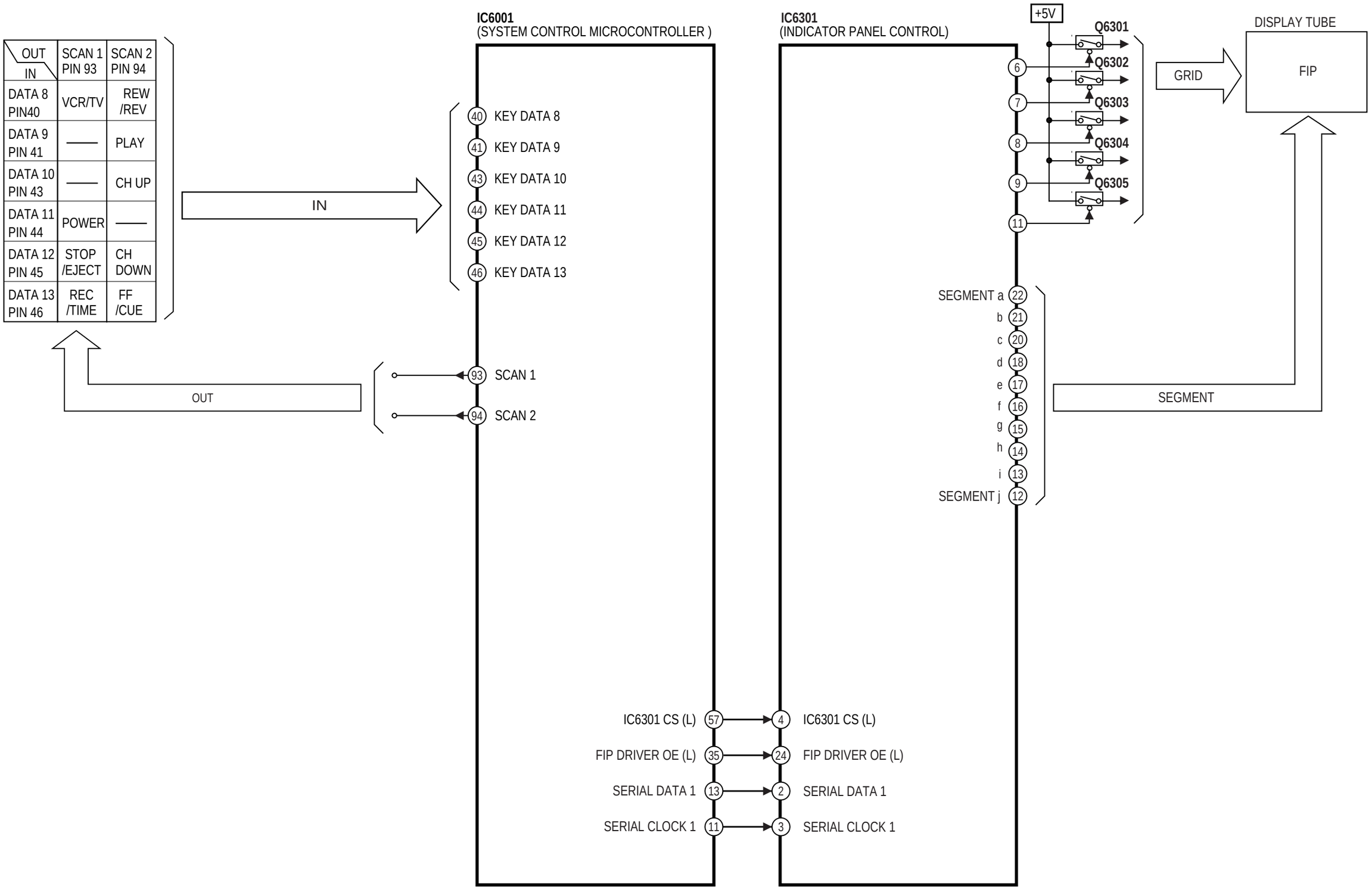
99

(TO IC3501(32)) HEAD AMP SW

100

(FROM IC3501(33)) ENVELOPE DET

MAIN C.B.A.


IC6001
(SYSTEM CONTROL MICROCONTROLLER)
IC6301
(INDICATOR PANEL CONTROL)
+5V
DISPLAY TUBE
FIP
GRID
Q6301
Q6302
Q6303
Q6304
Q6305
OUT / IN
SCAN 1 PIN 93
SCAN 2 PIN 94
DATA 8 PIN40
VCR/TV
REW /REV
DATA 9 PIN 41
PLAY
DATA 10 PIN 43
CH UP
DATA 11 PIN 44
POWER
DATA 12 PIN 45
STOP /EJECT
CH DOWN
DATA 13 PIN 46
REC /TIME
FF /CUE
IN
OUT
40 KEY DATA 8
41 KEY DATA 9
43 KEY DATA 10
44 KEY DATA 11
45 KEY DATA 12
46 KEY DATA 13
93 SCAN 1
94 SCAN 2
6
7
8
9
11
SEGMENT a 22
b 21
c 20
d 18
e 17
f 16
g 15
h 14
i 13
SEGMENT j 12
SEGMENT
IC6301 CS (L) 57 → 4 IC6301 CS (L)
FIP DRIVER OE (L) 35 → 24 FIP DRIVER OE (L)
SERIAL DATA 1 13 → 2 SERIAL DATA 1
SERIAL CLOCK 1 11 → 3 SERIAL CLOCK 1

MAIN C.B.A. VEPS6061AA (A) / VEPS6061GC (C)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

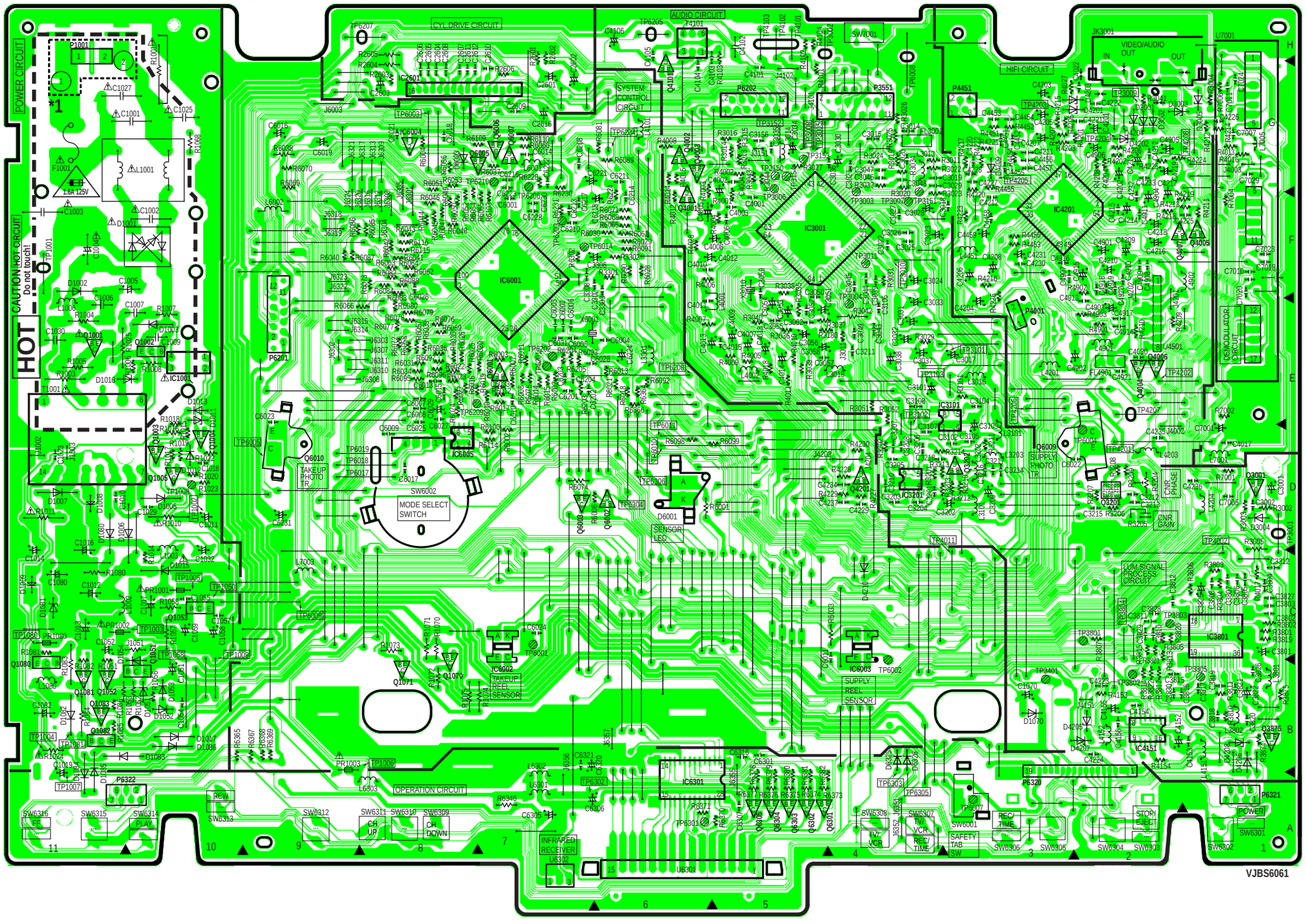
Main C.B.A. replacement note for models PVQ-V200, PV-V4020, and PV-V4520:
VEPS6061AA or VEPS6061AD for PVQ-V200, VEPS6060GA or VEPS6060GB for PV-V4020, VEPS6060HA or VEPS6060HC for PV-V4520 are used as Main C.B.A.
However, for parts standardization, only VEPS6061AA for PVQ-V200, VEPS6060GA for PV-V4020 and VEPS6060HA for PV-V4520 are supplied as a replacement.
Please note that VEPS6061AA and VEPS6061AD, VEPS6060GA and VEPS6060GB, VEPS6060HA and VEPS6060HC are interchangeable. Only interchangeable part is supplied as a replacement.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

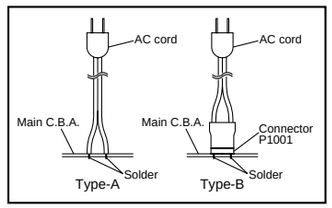
HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F

*1 AC cord replacement note



1) PV-V4540
AC cord is connected to Connector P1001
for products using Type-B.

2) PVQ-V200, PV-V4020, and PV-V4520
Either Type-A or B is used as a AC cord for these models.
However, for parts standardization and interchangeability,
Type-B will be supplied with Connector P1001 as a kit
(Part No.: LSJA0281-S) for replacement.
When replacing AC cord on products using Type-A,
connect Connector P1001 to Main C.B.A. with solder and
connect AC cord to Connector P1001.

MAIN C.B.A. VEPS6060GA (B) / VEPS6060GC (D) / VEPS6060HA (E) / VEPS6060HB (F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

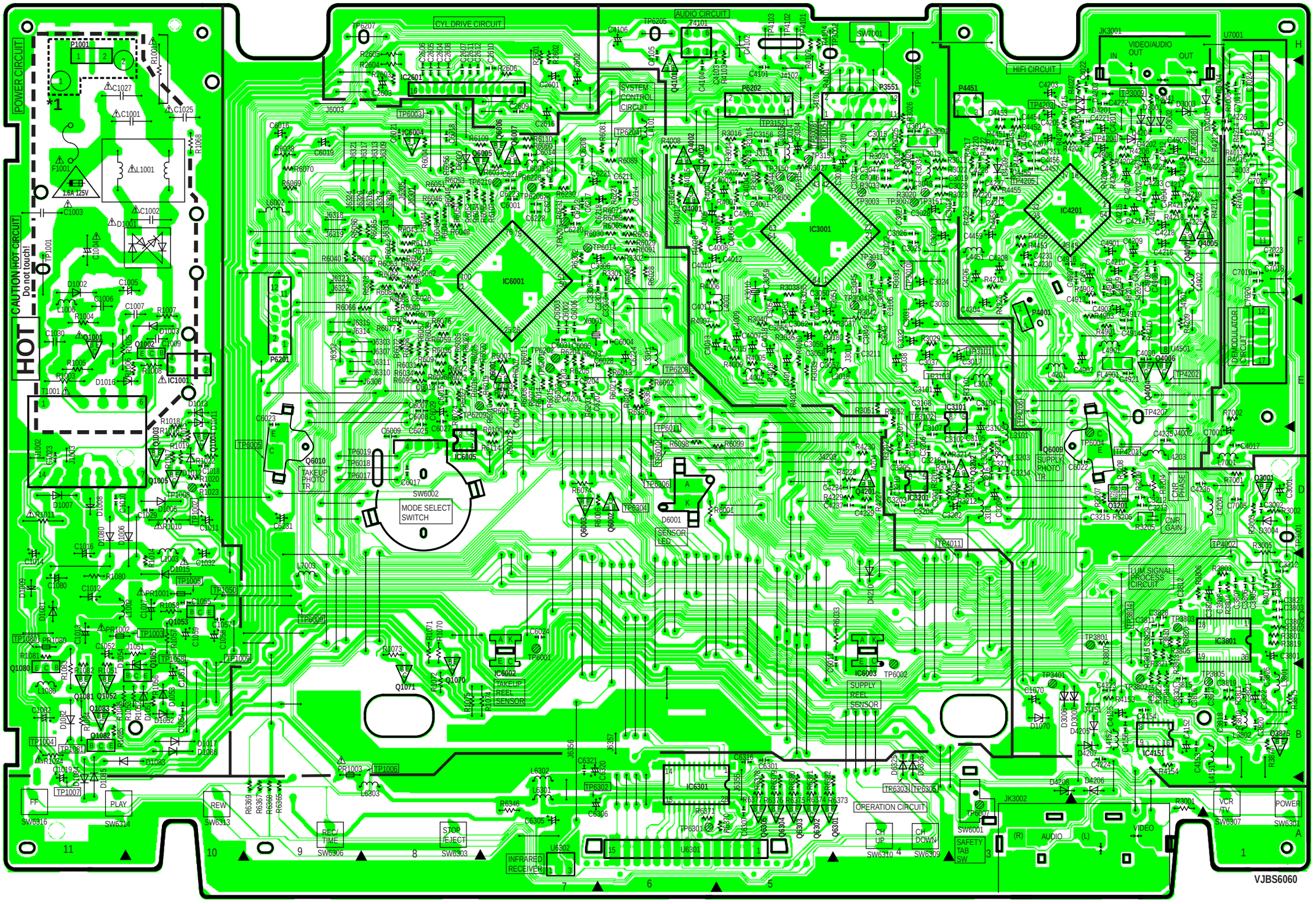
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

Main C.B.A. replacement note for models PVQ-V200, PV-V4020, and PV-V4520:
VEPS6061AA or VEPS6061AD for PVQ-V200, VEPS6060GA or VEPS6060GB for PV-V4020, VEPS6060HA or VEPS6060HC for PV-V4520 are used as Main C.B.A. However, for parts standardization, only VEPS6061AA for PVQ-V200, VEPS6060GA for PV-V4020 and VEPS6060HA for PV-V4520 are supplied as a replacement. Please note that VEPS6061AA and VEPS6061AD, VEPS6060GA and VEPS6060GB, VEPS6060HA and VEPS6060HC are interchangeable. Only interchangeable part is supplied as a replacement.

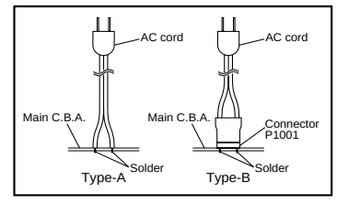
HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F

*1 AC cord replacement note



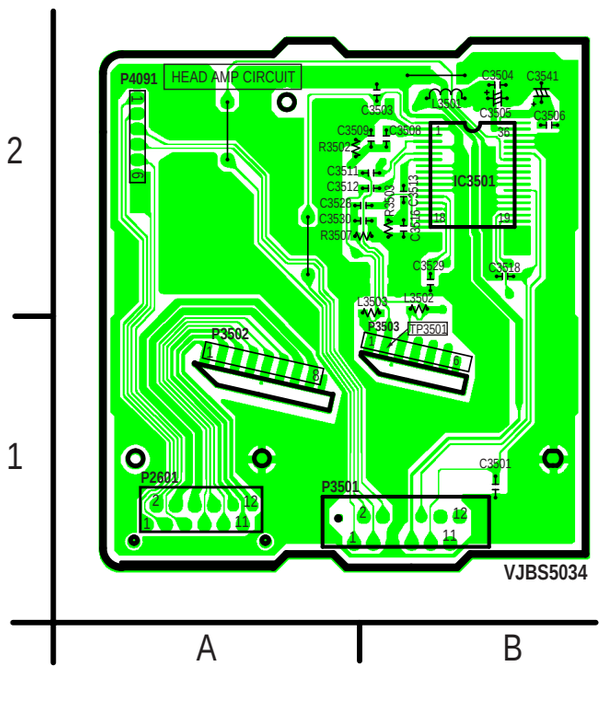
1) PV-V4540
AC cord is connected to Connector P1001 for products using Type-B.

2) PVQ-V200, PV-V4020, and PV-V4520
Either Type-A or B is used as a AC cord for these models. However, for parts standardization and interchangeability, Type-B will be supplied with Connector P1001 as a kit (Part No.: LSJA0281-S) for replacement.
When replacing AC cord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.

HEAD AMP C.B.A. VEPS5034A (A)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

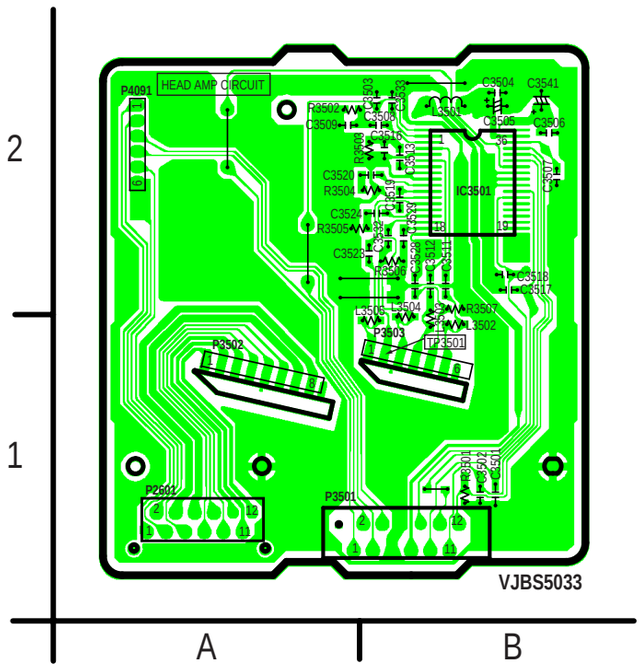
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



HEAD AMP C.B.A. VEPS5033A (B, C, D)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

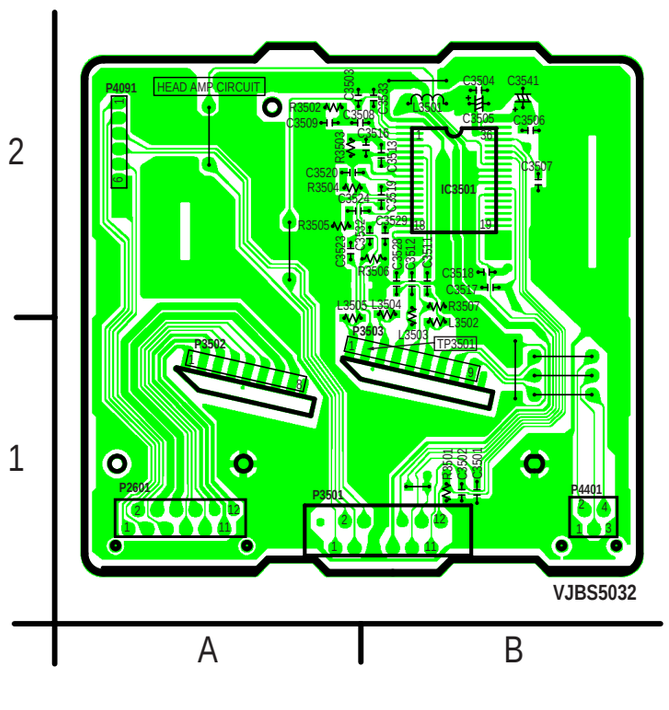
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



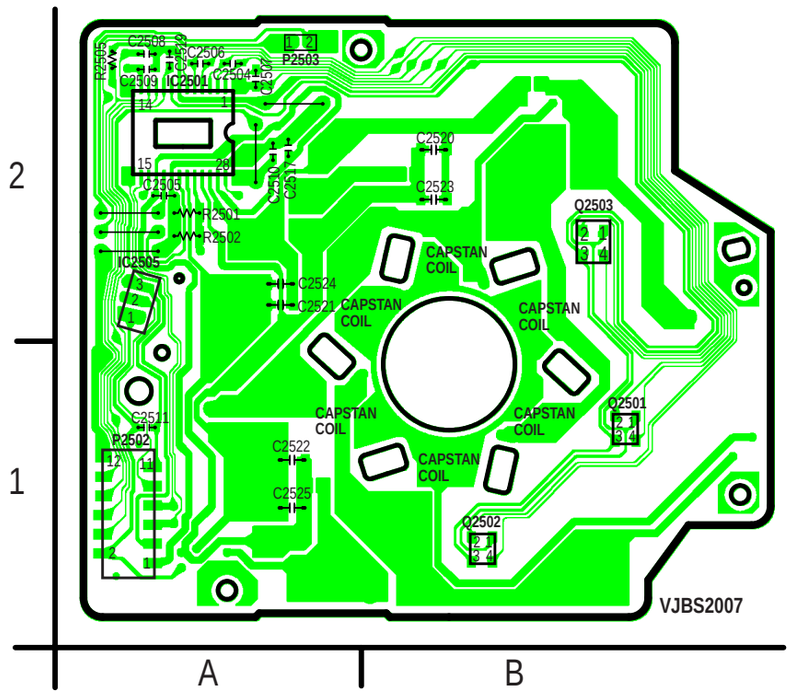
Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. VEPS5032A (E, F)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

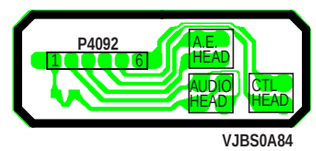
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



CAPSTAN STATOR C.B.A. VEMS0331



AUDIO CONTROL HEAD P.C.B.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE
TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.
(Q2501, Q2502, Q2503, CAPSTAN COIL)

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ⓘ :Test point with a jumper wire across a hole in P.C.B.
   ▭→ :Test point with a component lead on the foil side.
   ▨ :Test point with no test pin.
   ● :Test point with a test pin.

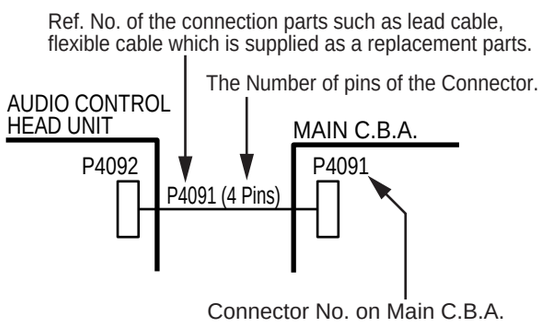
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

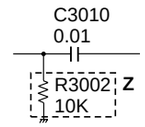
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
AUDIO CONTROL HEAD UNIT
MAIN C.B.A.
P4092
P4091 (4 Pins)
P4091
Connector No. on Main C.B.A.

3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

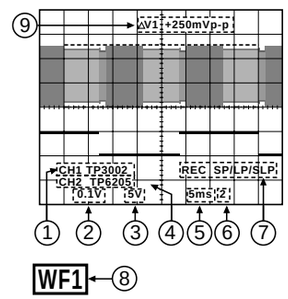
   Example:



4. The part number shown on this drawing is only main part number,
   except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope
(1:CH1,2:CH2)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing,
please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

Comparison chart of models & marks

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

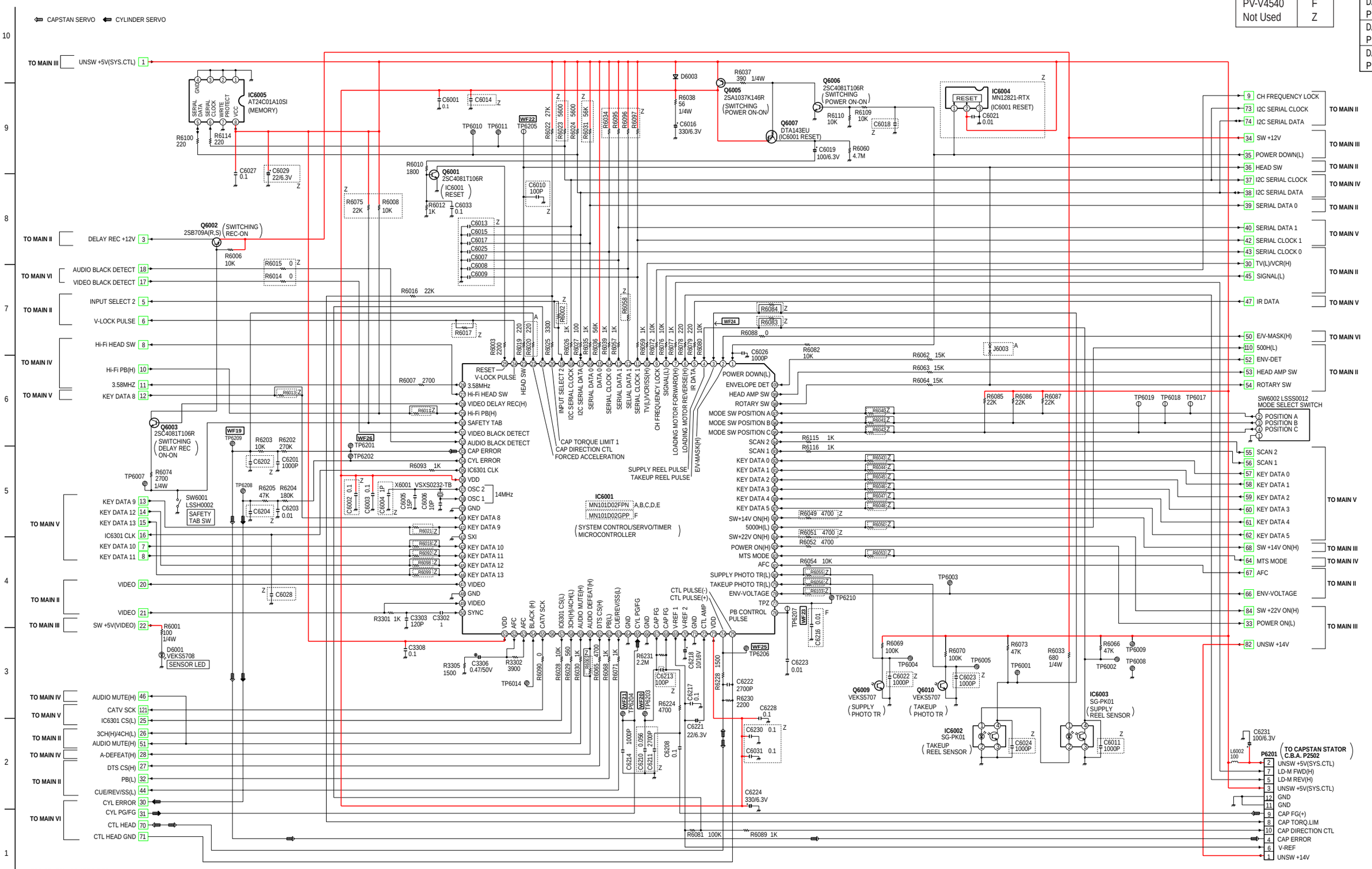
Main C.B.A. replacement note for models PVQ-V200, PV-V4020, and PV-V4520:
VEPS6061AA or VEPS6061AD for PVQ-V200, VEPS6060GA or VEPS6060GB for PV-V4020, VEPS6060HA or VEPS6060HC for PV-V4520 are used as Main C.B.A. However, for parts standardization, only VEPS6061AA for PVQ-V200, VEPS6060GA for PV-V4020 and VEPS6060HA for PV-V4520 are supplied as a replacement. Please note that VEPS6061AA and VEPS6061AD, VEPS6060GA and VEPS6060GB, VEPS6060HA and VEPS6060HC are interchangeable. Only interchangeable part is supplied as a replacement.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

IC6001 KEY MATRIX

OUT / IN	SCAN 1 PIN 93	SCAN 2 PIN 94
DATA 8 PIN40	VCR/TV	REW /REV
DATA 9 PIN 41	——	PLAY
DATA 10 PIN 43	——	CH UP
DATA 11 PIN 44	POWER	——
DATA 12 PIN 45	STOP /EJECT	CH DOWN
DATA 13 PIN 46	REC /TIME	FF /CUE



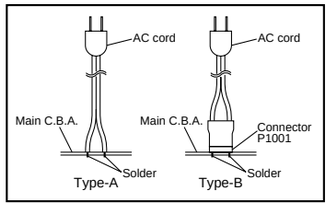
UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165/WG713A/1SS133T,
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

*1 AC cord replacement note



1) PV-V4540
AC cord is connected to Connector P1001 for products using Type-B.
2) PVQ-V200, PV-V4020, and PV-V4520
Either Type-A or B is used as a AC cord for these models. However, for parts standardization and interchangeability, Type-B will be supplied with Connector P1001 as a kit (Part No.: LSJA0281-S) for replacement.
When replacing AC cord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

*1
AC CORD
P1001
AC120V 1
AC120V 2
AC CORD
HOT
F1001 1.6A/125V
1.6A 125V
C1027 0.01 125V
C1001 0.01 125V
C1002 3300P 125V
D1001 S1WBA60-4062
L1001 18M
R1001 2.7M 1/2W
C1025 100P 125V
C1003 3300P 125V
C1004 E,F 120/200V A,B,C,D 82/200V
T1001
ETS28AD2J3PP /ETS28AD2J3NP /VTPS0041-1 /VTPS0041-2 A,B,E,F
ETS28AD2J3PC /VTPS0041-1 /VTPS0041-2 /VTPS0042-1 /VTPS0042-2 C,D
R1004 33K 2W
C1005 4.7/200V
D1002 EG01V1 A,B,E,F EG01 C,D
C1006 220P 500V
L1006 VLPS0083
R1003 330K 1/2W
Q1002 2SD2259 (SWITCHING CONTROL)
Q1001 2SC4533LP.KT /2SC5130LF608 (SWITCHING)
WF27
WF33
C1009 0.018
R1005 56 1W
C1030 0.018
TP1001
D1003 ERA18-04V3 A,B,E,F ERA18-04 C,D
R1025 15 1/2W
C1007 0.22
R1008 3900 1/4W
R1006 2200
D1016
R1007 100 1/4W
WF28
2200P A,B,C,D
C1029 100P E,F
EG01V1 A,B,E,F
D1005 EG01 C,D
R1010 10 1/4W
TP1002
WF29
C1011 4.7/50V
Z C1054 0.01
PR1002 ICP-N38-TP1 /LSSF0009A25E /UNH000600A
C1010 0.01 A,B,C,D 100P E,F
D1006 ERB32-01L3
L1002 22
C1012 330/18V
D1015 MA7180 A,B,E,F MA2180LA /1N4746A-T /1N4746ARL (18V) C,D
C1013 330/25V
TP1003
WF30
D1080
C1080
D1081
R1080
PR1080
TP1080
J1001
D1007 MA188
TP1004
R1011 10 1/4W
C1014 4.7/50V
WF31
R1024 33 1/4W
D1008 EC21QSO3L
C1016 330/18V
L1003 10
PR1001 ICP-N38-TP1 /LSSF0009A25E /UNH000600A
C1017 1000/6.3V
WF32
D1009 D1FS4
PR1003 LSSF009AR37E
TP1006
C1019 100/6.3V
C1023 0
TP1007
D1011 MA4051N-TAKT (5.1V)
IC1001 PS2501-1-X /ON3131-R.KT /ON3131-S.KT (ERROR VOLTAGE DET)
R1014 220
C1021 1/50V
R1015 220
Q1003 2SC4081T106R /2SD1819A(R,S) (ERROR VOLTAGE DET)
R1016 5600 1/8W
R1017 10K
R1018 18K
C1018 0.1
R1019 3900
D1012 MA858
D1013
R1020 6800
Q1005 2SA1576A106R /2SB1218ARS (POWER DOWN-OFF)
R1022 220
Q1004 2SA1037K146R /2SB709A(R,S) (ERROR VOLTAGE DET)
TP1008
R1023 100K 2W
Z
R1085
R1084
Q1082 (+14V REGULATOR)
Q1083 (SWITCHING)
R1086
D1086
D1083
D1084
D1085
68 SW +14V ON(H)
77 UNSW +33V
TP1058
Q1051 2SD1581(T) /2SD2159(T) (SWITCHING POWER ON +12V)
J1051
D1054
C1052 10/16V
C1051 0.47/50V
R1052 15K 1/4W
R1053 15K 1/4W
D1051 MA4100N-H (11V)
R1056
Q1052 2SC2412K1 /2SD601(R,S) (SWITCHING POWER ON-OFF)
R1051 1200
78 SW +12V
86 SW +12V
34 SW +12V
33 POWER ON(L)
19 UNSW +14V
120 UNSW +14V
D1017 ERA15-01V5
82 UNSW +14V
Q1080 (+22V REGULATOR)
L1080
C1082
D1082
R1081
R1083
Q1081 (SWITCHING)
R1082
TP1081
84 SW +22V ON(H)
TP1005
Q1053 2SD2097TV2R /2SD235800A (SWITCHING POWER ON +5V)
TP1050
C1032 220 6.3V
C1055 0.01
C1057 0.01
R1070 22K 1/4W
Q1070 2SB709A(R,S) (SWITCHING POWER ON-ON)
R1071 150K 1/4W
R1057 330 1/4W
R1058 100K 1/4W
C1059 47/16V
C1058 100/6.3V
79 UNSW +5V(SYS.CTL)
2 UNSW +5V(SYS.CTL)
1 UNSW +5V(SYS.CTL)
22 SW +5V(VIDEO)
87 SW +5V(VIDEO)
80 SW +5V(VIDEO)
104 SW +5V(VIDEO)
TP1009
R1074 2700 1/4W
R1075 2700 1/4W
R1072 47K 1/4W
Q1071 2SD601(R,S) (SWITCHING POWER ON -5V)
R1073 22K 1/4W
D1070 MA4056-M (5.6V)
C1070 100/16V
R1068 0
J1002
J1003
81 AUDIO -5V
83 LED+5V
35 POWER DOWN(L)
VJBS6061 A,C
VJBS6060 B,D,E,F

TO MAIN I
TO MAIN II
TO MAIN IV
TO MAIN I
TO MAIN VI
TO MAIN V
TO MAIN I
TO MAIN I
TO MAIN V
TO MAIN VI
TO MAIN I
TO MAIN IV
TO MAIN II
TO MAIN VI
TO MAIN II
TO MAIN V
TO MAIN I

NOTE: THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING TP1001 AS A COMMON TERMINAL.

UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165/1SS119/1SS133T AND
WATTAGE OF RESISTORS IS 1/10W.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

REC VIDEO SIGNAL REC AUDIO SIGNAL

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

U6301 LNM144AP01 (LED DISPLAY PANEL)

U6302 PNA4611M03KT
INFRARED RECEIVER UNIT
OUT GND Vcc

JK3002
VIDEO IN AUDIO IN (L) (R)

TO MAIN I
LED+5V 83
IC6301 CLK 16
SERIAL DATA1 40
SERIAL CLOCK1 42
IC6301 CS(L) 25

TO MAIN III
SCAN 2 55
SCAN 1 56
KEY DATA 0 57
KEY DATA 1 58
KEY DETA 2 59
KEY DATA 3 60
KEY DATA 4 61
KEY DATA 5 62
UNSW+5V(SYS.CTL) 79

TO MAIN I
KEY DATA 11 8
KEY DATA 12 14
KEY DATA 10 7
KEY DATA 13 15
KEY DATA 8 12
KEY DATA 9 13

IC6301 DN8657S-E1
(INDICATOR PANEL CONTROL)

TO MAIN II
75 VIDEO 2
88 AUDIO 2 L CH
85 AUDIO 2 R CH

TO MAIN IV
88 AUDIO 2 L CH

TO MAIN I
47 IR DATA
121 CATA SCK

TO MAIN III
120 UNSW+14V

P6320 (TO OPERATION C.B.A.)
19 GND
18 UNSW +14V
17 UNSW +5V(SYS.CTL)
16 CATV CS(L)
15 CATV DATA
11 KEY DATA 10
9 SCAN 1
7 KEY DATA 11
13 KEY DATA 13
8 KEY DATA 12
10 SCAN 2
12 KEY DATA 8
14 CATV SCK
6 VIDEO 2
5 GND
4 AUDIO 2 R CH
3 GND
2 GND
1 AUDIO 2 L CH

P6321 (TO OPERATION C.B.A.)
7 SCAN 1
6 KEY DATA 11
5 KEY DATA 10
4 VIDEO 2
3 GND
2 AUDIO 2 R CH
1 AUDIO 2 L CH

P6322 (TO OPERATION C.B.A.)
7 KEY DATA 9
6 SCAN 2
5 KEY DATA 8
4 KEY DATA 13
3 KEY DATA 10
2 KEY DATA 12
1 KEY DATA 11

UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165/1SS119/1SS133T,
SWITCHES IS EVQ11A09K AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6061 A,C
VJBS6060 B,D,E,F

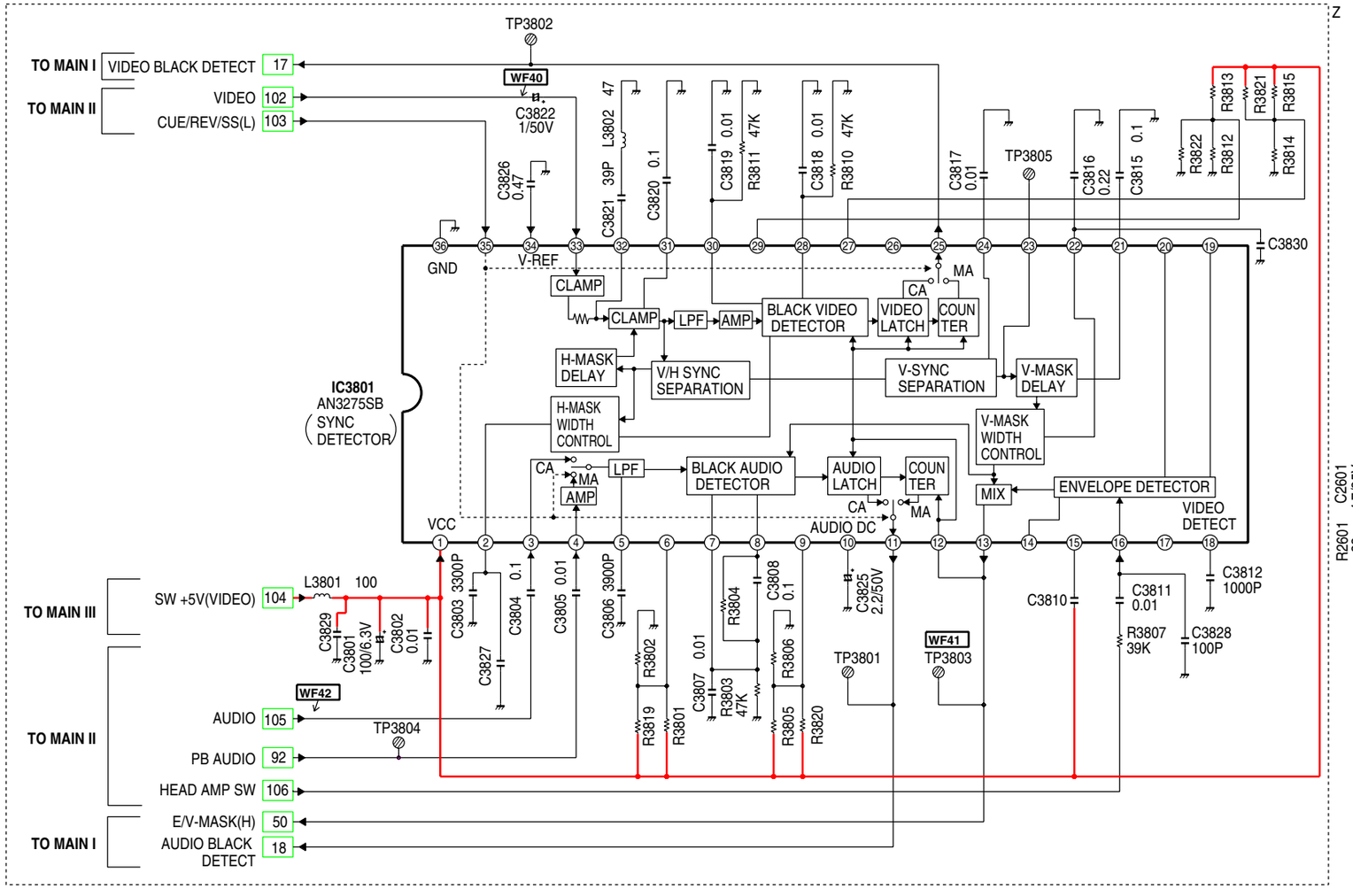
A B C D E F G H I J K

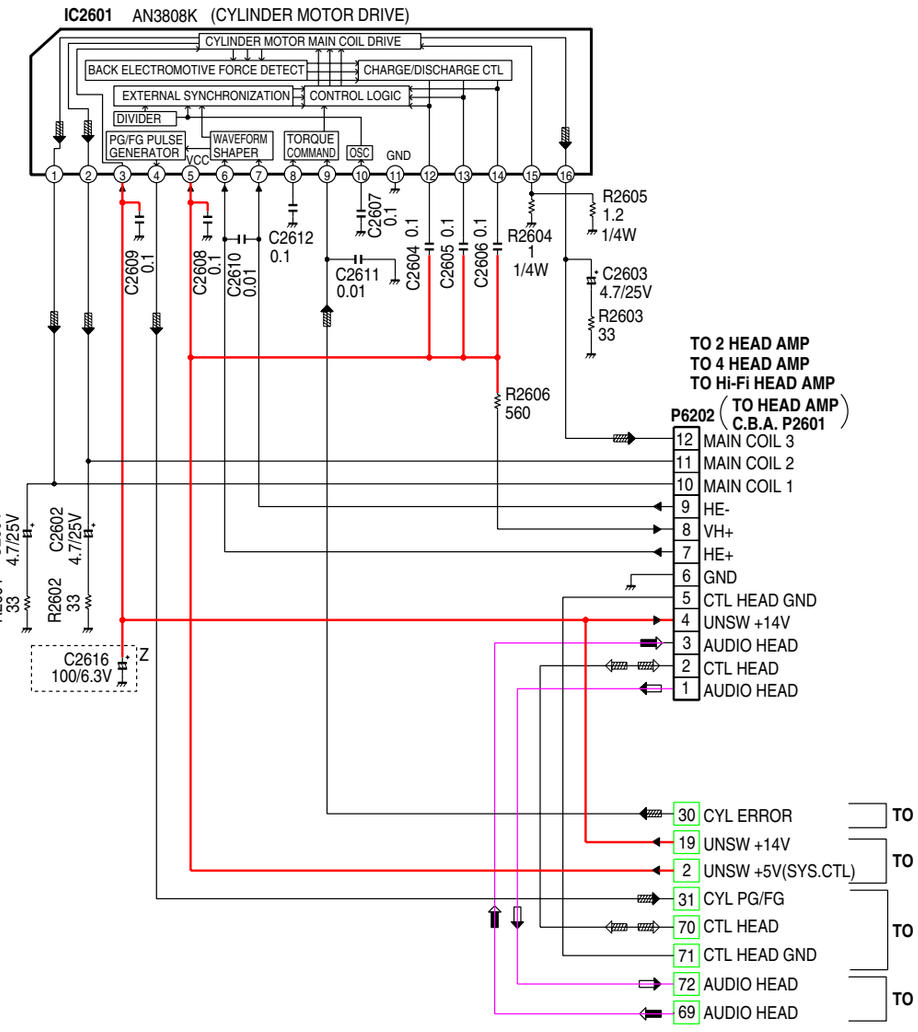
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

REC AUDIO SIGNAL PB AUDIO SIGNAL CYLINDER SERVO CAPSTAN SERVO





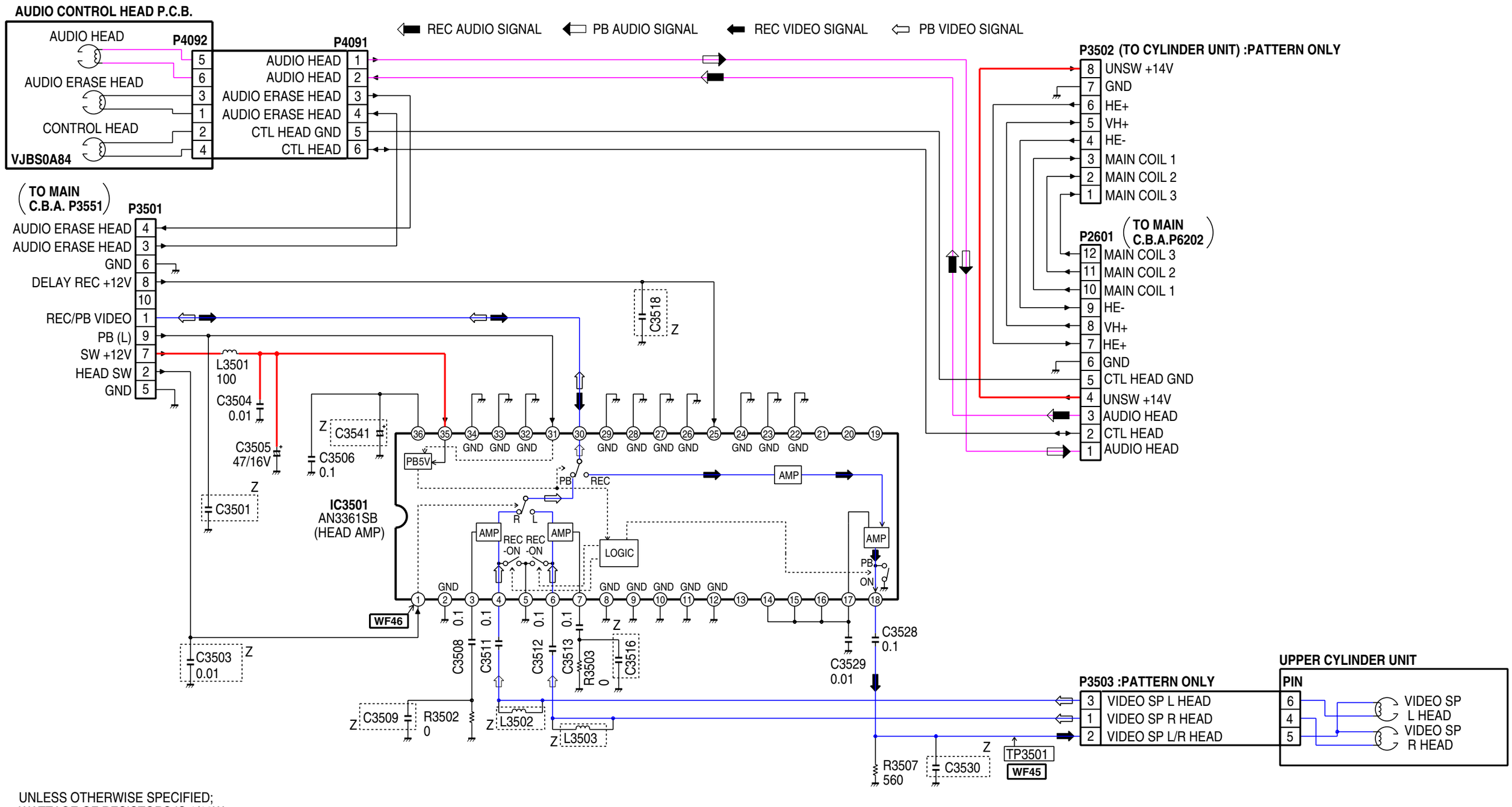
UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS6061 A,C
VJBS6060 B,D,E,F

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



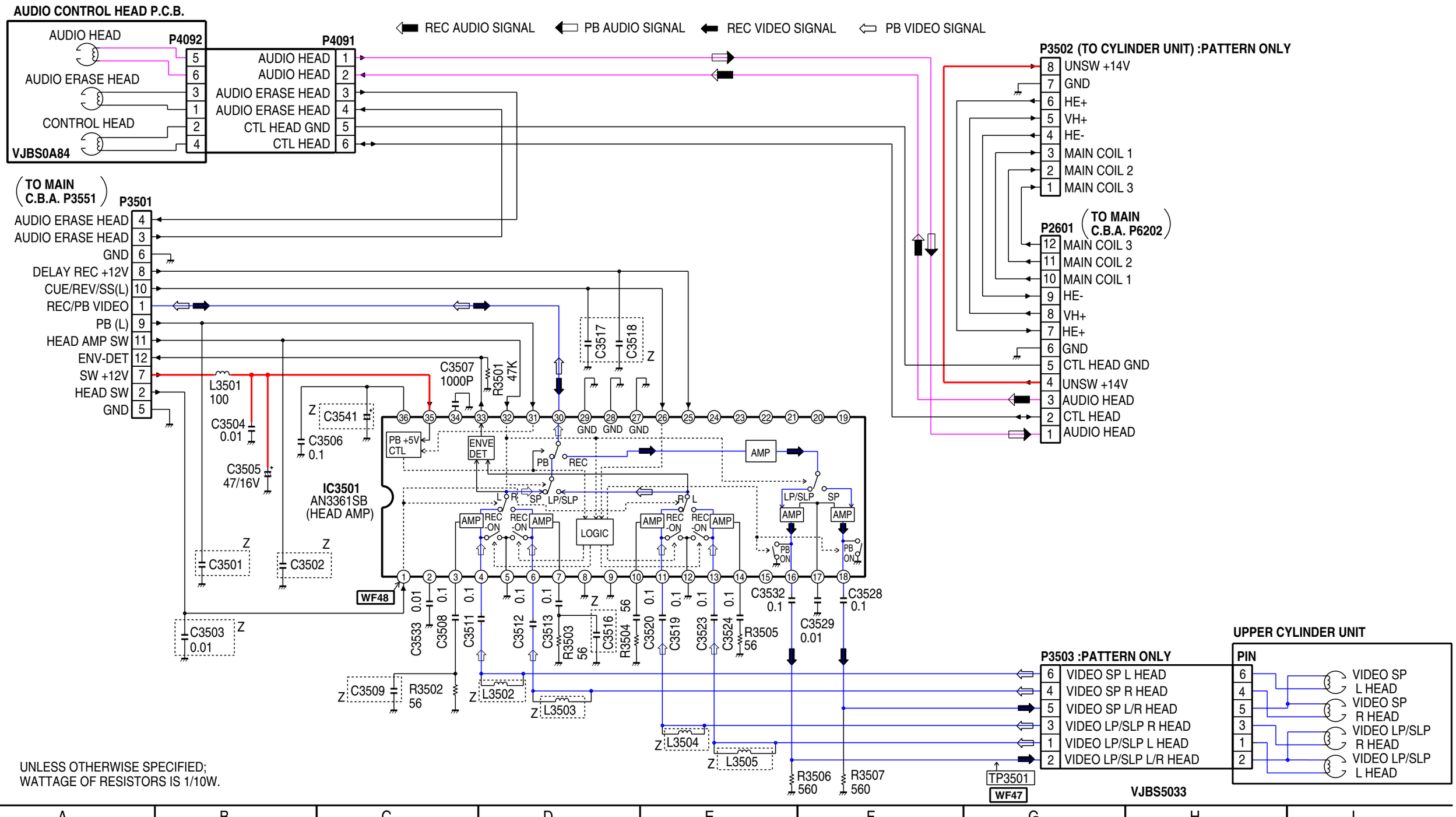
UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS5034

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

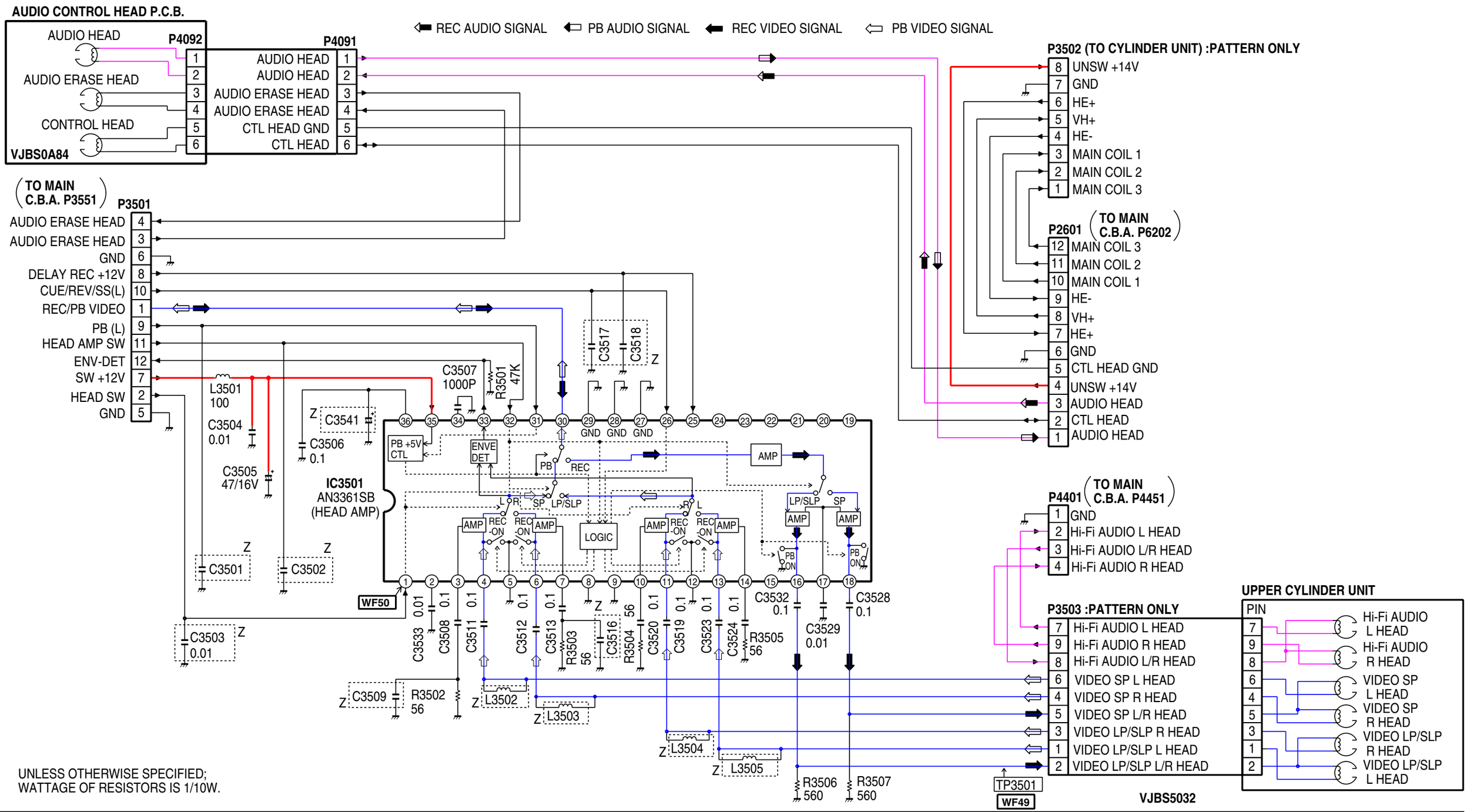
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A." OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.
(Q2501, Q2502, Q2503, CAPSTAN COIL)

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

CAPSTAN SERVO

LOADING MOTOR UNIT

LOADING MOTOR

P2503
LD-M(+) 2
LD-M(-) 1

TO MAIN C.B.A. P6201

P2502
GND 12
CAP FG(-) 11
CAP DIRECTION 10
CAP FG(+) 9
CAP TORQ.LIM 8
LD-M FWD(H) 7
V-REF 6
LD-M REV(H) 5
CAP ERROR 4
UNSW +5V(SYS.CTL) 3
UNSW +5V(SYS.CTL) 2
SW +14V 1

IC2501 AN3845SC (CAPSTAN/LOADING MOTOR DRIVE)

LOADING MOTOR CONTROL LOGIC
TORQUE COMMAND
DIRECTION CONTROL LOGIC
CAPSTAN MOTOR COIL DRIVE
UPPER DRIVE CONTROL
LOWER DRIVE CONTROL
DIRECTION DETECT
POSITION SIGNAL PROCESS
VCC
GND

C2505 Z
C2508 0.1
C2509 0.1
R2505 2200
C2519 1000P
R2501 1 1/8W
R2502 1 1/8W
C2506 0.01
C2504 0.01
C2507 0.01
C2517 0.1
C2510 0.1
C2523 Z
C2520 2.2
C2524 Z
C2521 2.2
C2525 Z
C2522 2.2
C2511 0.1

Q2501 (HALL TRANSISTOR) H1- VH- VH+ H1+
Q2502 (HALL TRANSISTOR) H2- VH- VH+ H2+
Q2503 (HALL TRANSISTOR) H3- VH- VH+ H3+

CAPSTAN COIL

IC2505 EZMPS300F12
(MR HEAD)
VCC OUT1 GND 1 2 3 4

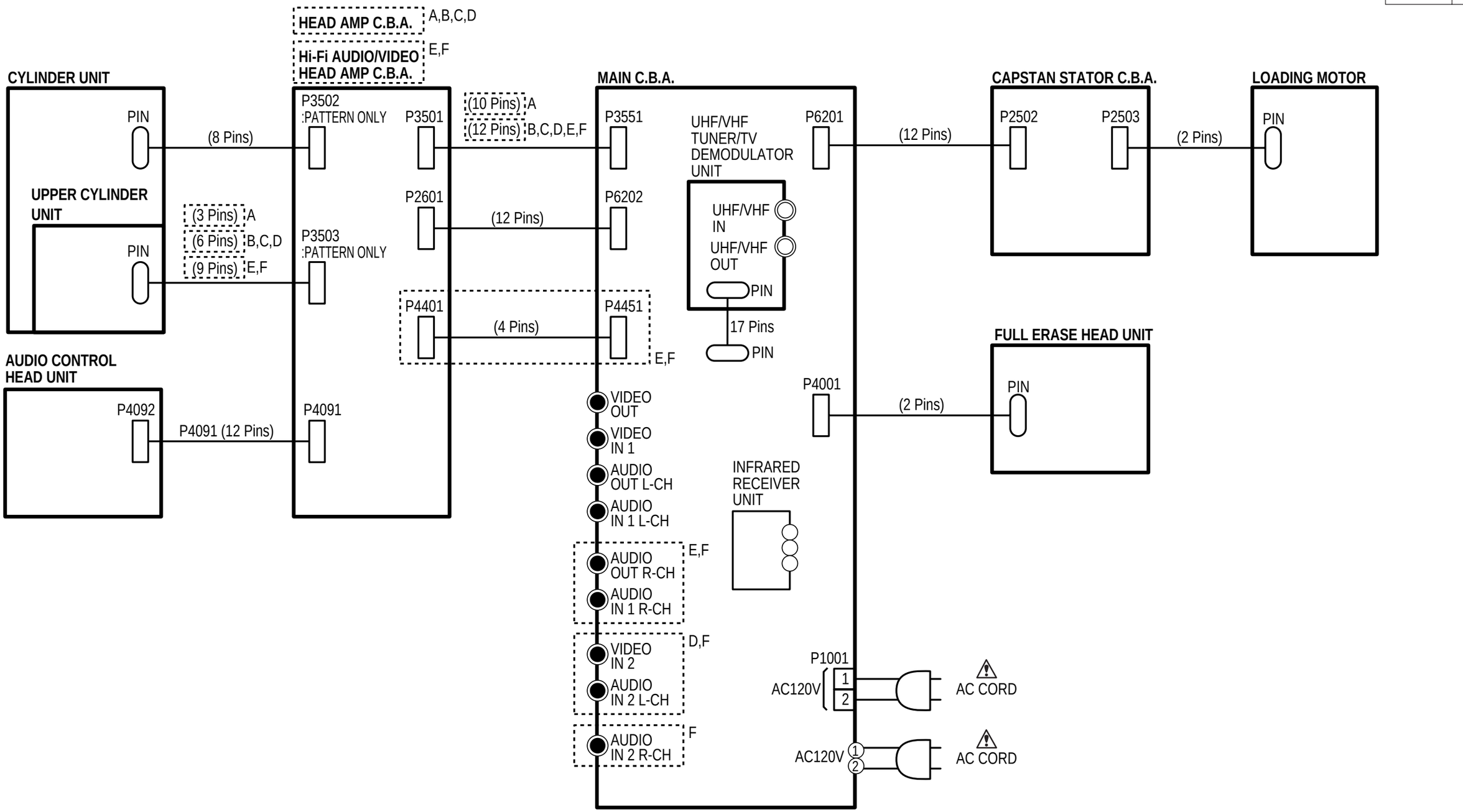
VJBS2007

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

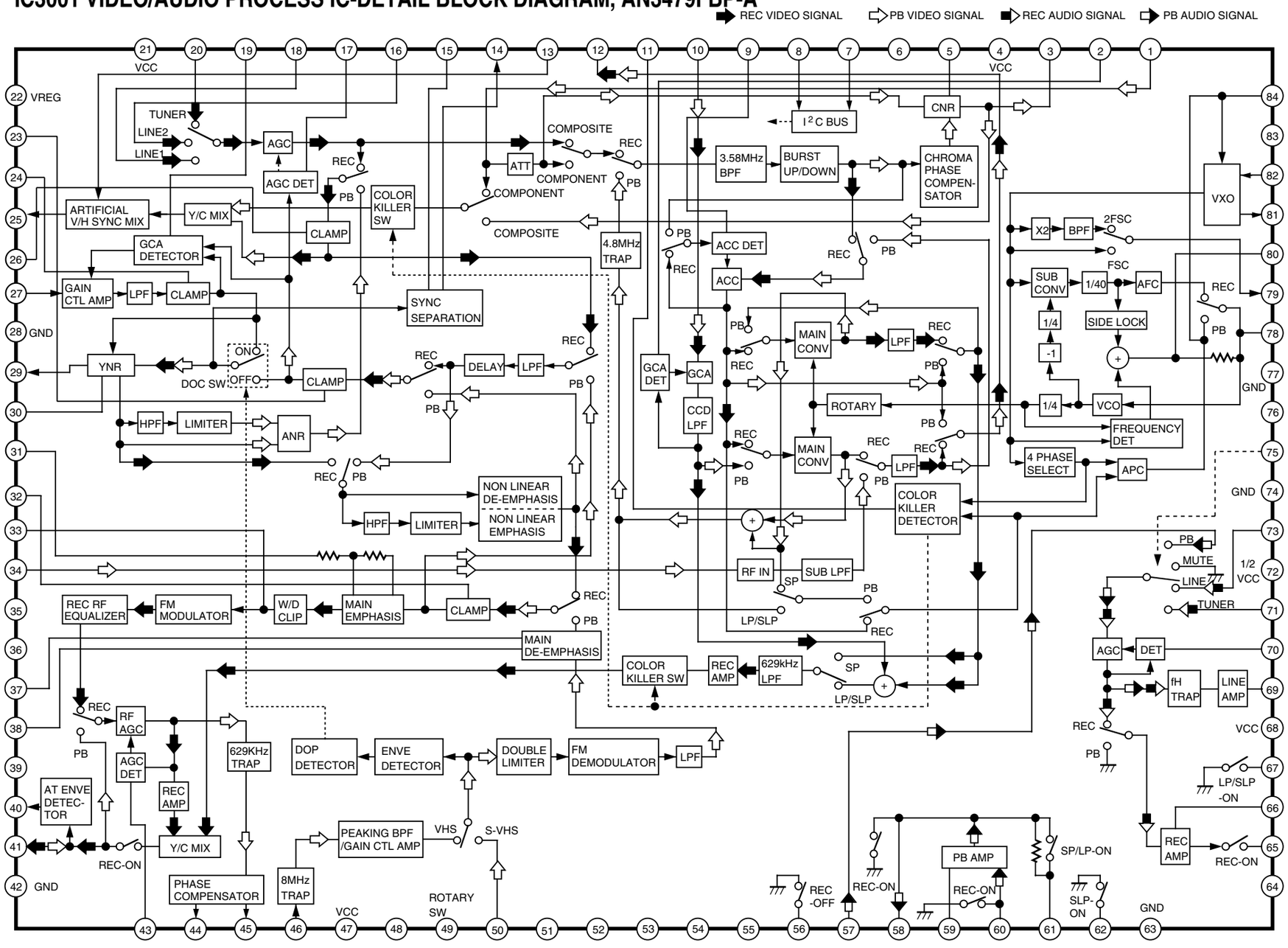
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
CYLINDER SERVO

IC3101 MN3885S (CCD 1H DELAY)
IC3201 MN3890S (CCD 1H DELAY)
IC3001 AN3479FBP-A (VIDEO/AUDIO PROCESS)
IC4151 UPD4053BG (INPUT SELECT)
FL3001 VLFS0209
Q3201 IMZ1 (PHASE COMPENSATOR)
Q3202 (AMP)
Q3875 (BUFFER)
Q3001 2SA1037K146R /2SB709A (BUFFER)
Q4001 2SA1576A106R (AUDIO DELAY REC ON-OFF)
Q4002 2SD1819A(R,S) (AUDIO DELAY REC ON-OFF)
Q4003 2SD1819A(R,S) (AUDIO DELAY REC ON-OFF)
Q4101 2SC2412K1 (BIAS OSC)
Q4004 DTA114TU (AUDIO MUTE)
Q4005 DTC114TU (AUDIO MUTE)
Q4006 DTC114TU (AUDIO MUTE)
Q4007 DTC114TU (AUDIO MUTE)
T4101 EIQ7QF018Q
X3010 VSXS0195
U7001 UHF/VHF TUNER/TV DEMODULATOR UNIT VEQS0614L,A,B,C,D VEQS0614H,E,F
SW7001 VSSS0152
L7005 VLPS0092
L4001 15M
L4101 100
L3018 47
L3016 33
L7001 22
L3101 100
L3201 100
L4201 100
L4202 100
L4203 100
L4204 100
L4235 1
L4236 1
TP4201
TP4202
TP4011
TP4101
TP4102
TP4103
TP4002
TP3001
TP3002
TP3003
TP3005
TP3007
TP3008
TP3009
TP3010
TP3011
TP3101
TP3102
TP3103
TP3150
TP3151
TP3152
TP3153
TP3154
TP3401
P3551 TO HEAD AMP C.B.A. P3501
TO 2 HEAD AMP
TO 4 HEAD AMP
TO Hi-Fi HEAD AMP
FULL ERASE HEAD UNIT P4001
JK3001
J3011
J4001
J4003
J4101
J4102
D3001 MA4047-M (4.7V)
D3002 MA4047-M (4.7V)
D3004 MA4091-M (9.1V)
D3003 MA4130-M (3.3V)
D3005
REC/PB CHROMINANCE SIGNAL PROCESS
REC/PB LUMINANCE SIGNAL PROCESS
SYNC SEPARATION
S-VHS/VHS DET
ATENVELOPE DETECTER
I2C CONTROL
CNR GAIN R3205 1KB
CNR PHASE R3204 2KB
TO MAIN I
TO MAIN III
TO MAIN IV
TO MAIN V
TO MAIN VI
UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SB709A,
NPN TRANSISTORS IS 2SD601A AND
WATTAGE OF RESISTORS IS 1/10W.
VJBS6061 A,C
VJBS6060 B,D,E,F

IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

REC AUDIO SIGNAL
PB AUDIO SIGNAL

TO MAIN I
TO MAIN II
TO MAIN I
MTS MODE 64
SIF OUT 94
A-DEFEAT(H) 28
I2C SERIAL DATA 38
I2C SERIAL CLOCK 37
AUDIO MUTE(H) 46

TO MAIN III
SW +5V(VIDEO) 87

FL4901
EFCT4R5YS5AA

C4921 Z
C4913 0.01
R4901 1K
C4915 100/6.3V Z
C4916 0.1
R4902 Z
C4914 R4903 Z
C4917 0.1
C4920 0.1
C4919 0.1
C4918 0.1
C4907 Z
C4903 3.3/50V
C4902 2.2/50V
L4201 100
C4230 47/6.3V
C4231 0.1 Z
C4204 33/6.3V
R4216 Z
R4453 33K
R4456 Z
C4206 10/16V
C4208 10/16V
C4212 0.015
C4227 0.22
R4220 Z
R4455 1500
L4451 100
C4459 100/6.3V
C4458 0.1 Z
C4229 0.01
R4228 10K
Q4201 (BUFFER) Z
R4229 0
R4230 2700
R4227 0
C4234
C4237 Z
J4203 11 3.58MHZ
J4204 Z 91 3.58MHZ
TO MAIN I
TO MAIN II

48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
GND VCC GND AUDIO MUTE(H)

MTS/SAP SIGNAL PROCESS
MTS MUTE CONTROL
I2C CONTROL
ENV DETECTOR
R-CH Hi-Fi AUDIO SIGNAL PROCESS
L-CH Hi-Fi AUDIO SIGNAL PROCESS
Hi-Fi NORMAL MIX
AGC AMP
REC AMP
AGC DET

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
VCC GND VCC

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17

WF35
WF36
WF37
WF34
WF38

C4908 Z
C4909
C4910 Z
C4210 10/16V
C4901 1/50V
C4209 10/16V
C4216 10/16V
C4217 22/6.3V
C4218 10/16V
C4911 0.022
C4904 3.3/50V
C4219 1/50V
C4215 0.1 Z
C4214 100/16V

TO MAIN II
AUDIO R CH 97
AUDIO L CH 96
RF AUDIO 95
NORMAL AUDIO 101
NORMAL AUDIO 98
R4210 1K
R4209 1K
R4224 33K
R4225 10K
J4202
J4201

IC4201
AN3662FBP
(Hi-Fi AUDIO MTS/SAP PROCESS)

GND GND 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 GND
TUNER (R-CH) LINE1 LINE2 TUNER (L-CH) LINE1 LINE2

C4232 Z
C4233 Z
C4912 0.1
C4213 10/16V
C4202 4.7/25V
C4905 10/16V
TP4208
C4201 4.7/25V
C4906 1/50V
R4215 Z
C4203 33/6.3V
R4207 8200 F
R4205 47K F
C4223 Z
D4205 MA4091 /RD9.1ESAB2 (9.1V) E
D4207 MA4091 /RD9.1ESAB2 (9.1V)
R4203 8200
R4201 47K
TP4203
C4221 100P
D4201
D4203 Z
R4206 47K F
R4208 8200 F
C4224 Z
D4206 MA4091 /RD9.1ESAB2 (9.1V) E
D4208 MA4091 /RD9.1ESAB2 (9.1V)
R4202 47K
TP4204
R4204 8200
C4222
D4202
D4204 Z

TO MAIN II
109 DELAY REC +12V
D4209 MA165
R4221 1500
R4222 1500
TP4205
TP4207
TP4206
R4226 1500
C4228 0.01
C4220 Z
TO MAIN I
10 Hi-Fi PB(H)
8 Hi-Fi HEAD SW
R4217 Z
C4455 0.1
C4451 0.01
R4451 Z
C4453 0.01 Z
R4223 10K
R4452 Z
C4454 0.01 Z
R4454 Z
C4457
C4452 0.01
C4456 0.1
C4211 0.015
C4207 10/16V
C4205 10/16V

P4451 (TO Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. P4401)
1 GND
2 Hi-Fi AUDIO L HEAD
3 Hi-Fi AUDIO L/R HEAD
4 Hi-Fi AUDIO R HEAD

TO MAIN V
88 AUDIO 2 L CH
TO MAIN II
99 AUDIO 1 L CH
107 AUDIO 2 R CH
100 AUDIO 1 R CH

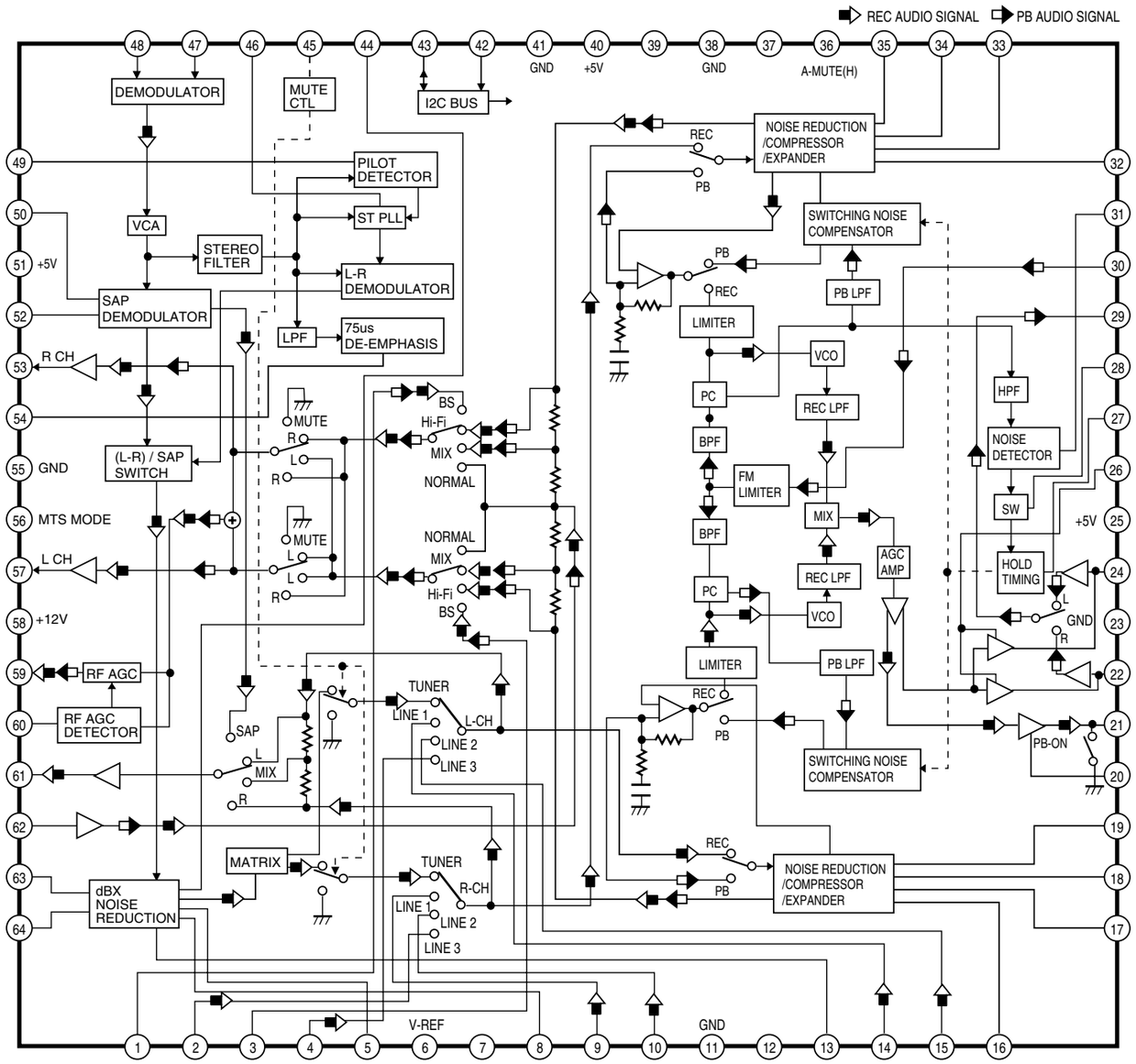
Z
(TO SPATIALIZER C.B.A. P4501)
PIN 8 7 6 5 4 3 2 1
SPATIALIZER CTL
AUDIO L CH
GND
AUDIO R CH
SW +12V
AUDIO L CH
GND
AUDIO R CH

86 SW +12V
TO MAIN III

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS6060

IC4201 Hi-Fi AUDIO MTS/SAP PROCESS IC-DETAIL BLOCK DIAGRAM, AN3662FBP



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE / PIN NO.	REC	PLAY
IC1001		
1	5.3	5.3
2	4.4	4.4
3	0.6	0.6
4	2.0	2.0
IC3001		
1	4.9	4.9
2	3.3	3.3
3	2.0	2.1
4	4.9	4.9
5	4.2	4.2
6	1.8	---
7	5.1	5.1
8	5.2	---
9	2.2	2.2
10	2.7	2.7
11	0.8	0.8
12	2.7	2.7
13	0	0
14	0.3	0.3
15	1.1	1.1
16	3.0	3.6
17	2.3	1.7
18	3.0	3.3
19	2.6	2.6
20	3.0	3.1
21	5.0	5.0
22	2.0	2.0
23	2.4	2.3
24	2.3	2.1
25	2.0	2.0
26	2.4	2.3
27	2.0	1.9
28	0	0
29	1.8	1.8
30	1.8	1.8
31	2.0	2.1
32	2.2	2.3
33	1.9	2.0
34	2.7	2.7
35	2.0	2.2
36	---	2.4
37	16.4	1.4
38	4.4	2.2
39	1.9	1.9
40	2.8	2.9
41	2.7	3.4
42	0	0
43	3.3	3.3
44	---	2.5
45	---	2.5
46	---	2.5
47	5.0	5.0
48	1.1	0
49	1.5	2.6

MODE / PIN NO.	REC	PLAY
50	4.0	0
51	5.0	5.0
52	1.2	2.5
53	2.4	2.4
54	1.8	2.4
55	2.0	2.0
56	5.0	4.3
57	2.5	2.5
58	2.5	0
59	2.5	0
60	2.5	0
61	2.5	2.5
62	0	0
63	0	0
64	2.0	2.4
65	2.5	2.6
66	2.5	2.6
67	2.5	2.5
68	5.0	5.1
69	2.6	0
70	0	---
71	2.5	2.5
72	2.5	2.5
73	2.5	2.5
74	0	-0.1
75	0	-0.1
76	3.2	-0.1
77	0	0
78	2.1	2.1
79	2.8	2.9
80	2.1	2.1
81	2.4	2.6
82	---	2.7
83	2.5	2.5
84	2.4	2.3
IC3101		
1	3.0	3.0
2	5.0	5.0
3	0	0
4	3.0	3.0
5	2.9	2.9
6	-2.6	-3.5
7	2.1	2.1
8	3.3	3.5
IC3801		
1	5.0	5.0
2	1.0	0.9
3	2.9	3.0
4	2.9	3.0
5	2.9	2.3
6	---	---
7	3.0	3.0
8	0	0
9	---	---
10	3.0	3.0

MODE / PIN NO.	REC	PLAY
11	4.9	4.9
12	1.3	1.3
13	1.3	1.3
14	4.5	4.5
15	1.0	1.0
16	4.7	4.7
17	2.8	2.8
18	0.6	0.6
19	1.8	1.8
20	1.9	2.0
21	3.2	3.2
22	1.7	1.7
23	---	---
24	1.7	1.7
25	4.9	4.9
26	---	---
27	---	---
28	2.9	2.9
29	2.5	2.5
30	3.1	3.1
31	3.0	3.1
32	2.3	2.4
33	2.8	2.8
34	2.9	2.9
35	5.0	5.0
36	0	0
IC4151		
1	---	---
2	---	---
3	---	---
4	---	---
5	---	---
6	0	0
7	-5.0	-5.0
8	0	0
9	---	---
10	---	---
11	---	---
12	2.2	2.2
13	2.2	2.2
14	0	0
15	0	0
16	5.2	5.2
IC4201		
1	2.0	2.3
2	0	0
3	2.4	2.2
4	0	0
5	2.2	2.2
6	2.5	2.4
7	2.0	2.1
8	0.4	0.3
9	0	0
10	0.2	0.2
11	0	0

MODE / PIN NO.	REC	PLAY
12	2.0	2.1
13	2.3	2.3
14	0	0
15	2.5	0.2
16	2.5	2.5
17	0.6	0.7
18	2.5	2.5
19	2.5	2.4
20	2.5	0
21	2.5	0
22	2.5	0.7
23	0	0
24	2.5	0.7
25	4.9	5.0
26	2.5	0
27	0	2.6
28	3.8	3.8
29	4.0	1.8
30	1.9	0.9
31	1.1	1.8
32	2.5	2.4
33	2.5	2.4
34	0.7	0.6
35	2.5	2.4
36	0	0
37	1.6	1.8
38	0	0
39	0.1	0.1
40	4.9	4.9
41	0	0
42	5.1	5.1
43	5.2	5.2
44	2.3	2.3
45	5.1	5.1
46	3.6	3.6
47	1.8	1.4
48	2.2	2.2
49	3.6	3.6
50	3.5	3.4
51	5.1	5.1
52	3.5	3.5
53	5.9	-0.1
54	2.3	2.3
55	0	0
56	0.1	0.1
57	5.9	5.8
58	12.1	-0.1
59	5.9	5.8
60	0.6	-0.1
61	2.5	-0.1
62	2.4	-0.1
63	2.3	2.3
64	0.4	0.4

MODE / PIN NO.	REC	PLAY
Q1001		
E	0	0
C	164.5	164.6
B	0.3	0.3
Q1002		
E	0	0
C	0.3	0.3
B	0.6	0.6
Q1003		
E	0	-0.1
C	4.0	4.1
B	-0.6	-0.6
Q1004		
E	4.1	4.1
C	0	0
B	4.4	4.4
Q1005		
E	4.7	4.7
C	5.2	5.2
B	5.3	5.3
Q1051		
E	12.1	12.0
C	14.3	14.4
B	9.3	9.4
Q1052		
E	0.6	0.5
C	9.1	9.3
B	0	0
Q1053		
E	5.1	5.1
C	5.2	5.2
B	5.9	5.9
Q3001		
E	1.9	1.9
C	0	0
B	2.6	2.7
Q3875		
E	2.8	2.8
C	0	0
B	2.0	2.0
Q4001		
E	5.1	4.3
C	-22.0	5.0
B	5.1	5.1
Q4002		
E	-22.0	0.7
C	0	0
B	-13	0
Q4003		
E	-22.0	0.7
C	0	0
B	-13.0	0

MODE / PIN NO.	REC	PLAY
Q4004		
E	0	0
C	-4.5	-4.5
B	0	0
Q4005		
E	-4.7	-4.7
C	0	0
B	0	0
Q4006		
E	-4.3	-4.3
C	0	0
B	0	0
Q4007		
E	-4.6	-4.6
C	0	0
B	0	0
Q4101		
E	0.1	0
C	11.6	0
B	0	0
TP1001	0	0
TP1002	32.2	32.3
TP1003	14.3	14.5
TP1004	-29.8	-29.8
TP1005	5.2	5.3
TP1006	5.3	5.3
TP1007	0	0
TP1008	5.2	5.3
TP1009	0	0
TP1050	5.1	5.2
TP1051	5.3	5.3
TP1058	12.1	12.1
TP1080	0	0
TP1081	13.6	13.7
TP3001	2.6	2.7
TP3002	2.7	2.3
TP3003	1.9	2.1
TP3004	4.2	4.3
TP3005	2.5	2.6
TP3006	2.4	2.5
TP3007	1.9	1.6
TP3008	3.3	3.3
TP3009	0	0
TP3010	4.9	5.0
TP3011	0.3	0.4
TP3101	2.9	3.1
TP3102	2.8	3.0
TP3103	1.8	1.9
TP3150	4.1	3.1
TP3151	2.3	2.4
TP3152	2.5	2.6
TP3153	2.5	2.6
TP3154	1.1	1.2
TP3401	0	0

MODE / PIN NO.	REC	PLAY
TP3801	0	0
TP3802	0	0
TP3803	0	0
TP3804	0	0
TP3805	5.0	5.1
TP4002	0	0
TP4003	0	0
TP4011	0	0
TP4101	0	0
TP4102	0	0
TP4103	0	0
TP4201	0	0
TP4202	0	0
TP4203	0	0
TP4204	0	0
TP4205	3.9	1.8
TP4206	3.8	3.8
TP4208	0.3	0.4
TP4207	1.9	0.9

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY	STOP
IC2601			
1	13.8	13.8	14.2
2	13.8	13.8	14.2
3	14.3	14.3	14.7
4	1.1	1.1	1.2
5	5.2	5.2	5.3
6	0.8	0.8	0.9
7	0.9	0.9	0.9
8	0.6	0.6	0.6
9	---	2.7	2.9
10	1.4	1.4	1.5
11	0	0	0
12	3.9	3.9	3.9
13	3.9	3.9	3.9
14	3.9	3.9	3.9
15	---	0.1	0.1
16	13.8	13.8	14.2
IC6001			
1	5.2	5.2	5.3
2	0	0	0
3	---	---	5.0
4	---	---	0.2
5	4.7	4.7	4.9
6	0	0	0
7	0	0	0
8	4.7	4.7	4.8
9	0.1	0.1	0.2
10	5.1	5.1	5.1
11	4.9	4.9	5.0
12	0	0	0
13	4.9	4.9	4.9
14	5.0	5.0	5.1
15	4.8	3.4	4.9
16	5.0	5.0	5.1
17	5.2	4.9	5.2
18	5.0	5.1	5.1
19	5.1	5.1	5.1
20	5.1	5.1	5.1
21	0	0	2.6
22	---	---	0
23	1.5	2.6	5.1
24	0	0	0
25	---	---	---
26	0	0	0
27	0	2.6	2.6
28	5.1	0	0
29	3.8	3.8	1.5
30	0	0	0
31	0	0	0
32	0	0	0
33	---	2.3	2.6
34	2.4	2.5	0
35	2.4	2.4	2.5
36	5.1	5.1	5.2
37	---	---	2.7
38	---	---	2.6
39	0	0	0
40	4.7	4.7	4.7
41	4.7	4.8	4.7
42	0	0	0
43	4.7	4.7	4.7
44	4.7	4.7	4.7
45	4.7	4.7	4.8
46	4.7	4.7	4.8
47	1.9	2.0	2.0
48	0	0	0
49	1.9	1.9	2.0
50	2.7	2.7	2.7
51	5.2	5.2	5.3
52	2.5	2.6	2.7
53	2.5	2.6	2.7
54	0	0	0
55	0	0	0
56	5.1	5.1	5.2
57	4.6	4.6	4.7
58	0	0	0.1
59	0	0	0
60	5.1	5.1	5.1
61	0.3	0.2	0.2
62	5.1	0	5.2
63	5.1	5.1	5.1
64	0	0	0
65	1.1	0.9	1.2
66	0	0	0
67	0.2	2.6	0
68	---	---	2.6
69	2.5	2.5	2.6
70	2.5	-0.1	2.6
71	0	-0.1	0
72	2.5	---	2.6
73	5.1	5.1	5.2
74	1.9	1.6	2.5
75	1.5	1.6	2.6
76	2.5	2.5	2.6
77	1.8	0.2	2.6
78	3.4	2.8	3.4
79	4.6	3.7	4.7
80	---	---	4.7
81	4.9	4.9	4.9
82	0	0	0.2
83	0	0	0.1
84	0	0	0
85	1.7	0.1	2.2
86	1.7	0	2.6
87	5.2	5.2	5.3
88	5.2	5.2	5.3
89	5.2	5.2	5.3
90	5.2	5.2	5.3
91	5.0	5.0	5.1
92	0	0	0
93	5.0	5.0	5.1
94	5.0	5.0	5.1
95	0	0	5.1
96	5.2	4.9	0
97	0	0	5.1
98	1.5	2.6	0
99	5.1	5.1	5.1
100	0.2	0	0.4
IC6002			
1	1.1	1.1	1.2
2	0	0	0
3	0	0	0
4	---	---	0.1
IC6003			
1	---	2.3	2.4
2	1.1	1.1	1.2
3	0	0	0
4	---	---	0.2
IC6005			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	5.2	5.2	5.2
6	5.1	5.1	5.1
7	0	0	0
8	5.2	5.2	5.3
IC6301			
1	0	0	0
2	4.9	4.9	4.9
3	4.9	4.9	4.9
4	4.6	4.6	4.7
5	0	0	0
6	4.3	4.2	4.6
7	4.3	4.2	4.6
8	4.2	4.2	4.6
9	4.2	4.2	4.6
10	0	0	0
11	4.5	4.4	4.8
12	8.8	5.0	4.1
13	8.5	---	3.2
14	5.8	4.3	4.4
15	3.3	3.3	2.9
16	3.8	2.7	5.1
17	4.9	2.8	12.3
18	---	---	12.8
19	0	0	0
20	---	---	---
21	---	2.9	8.5
22	3.5	3.0	6.6
23	1.8	---	---
24	2.4	2.4	2.5
25	0.1	0.1	0.2
26	0.1	0.1	0.1
27	1.9	2.0	2.2
28	4.7	4.7	5.0
Q6001			
E	0	0	0
C	---	---	5.1
B	0	0	0
Q6002			
E	11.2	12.0	12.1
C	11.8	0	0
B	12.0	12.1	12.1
Q6003			
E	5.1	0	0
C	11.2	12.0	12.1
B	4.5	0	0
Q6005			
E	4.3	4.3	4.4
C	5.1	5.1	5.2
B	5.2	5.2	5.3
Q6006			
E	0.7	0.7	0.8
C	0.1	0.1	0.1
B	0	0	0
Q6007			
E	0.1	0.1	0.1
C	5.1	5.1	5.2
B	5.1	5.1	5.2
Q6009			
E	0	0	0
C	5.1	5.1	5.2
B			
Q6010			
E	0	0	0
C	5.0	5.1	4.8
B			
Q6301			
E	4.7	4.6	5.0
C	2.2	1.4	2.7
B	4.7	4.6	5.1
Q6302			
E	4.7	4.6	5.0
C	1.7	1.3	1.0
B	4.8	4.6	5.1
Q6303			
E	4.7	4.5	5.0
C	1.7	---	---
B	4.8	4.6	5.1
Q6304			
E	4.7	4.5	5.0
C	1.9	-2.7	-1.7
B	4.7	4.6	5.1
Q6305			
E	4.7	4.6	5.0
C	1.3	0	0.5
B	4.8	4.6	5.1
TP6001	---	---	5.2
TP6002	---	---	0.2
TP6003	3.4	2.9	2.9
TP6004	5.0	5.2	5.1
TP6005	5.0	5.1	5.1
TP6007	0	0	0
TP6008	0	0	0
TP6009	5.2	5.3	5.3
TP6010	5.3	5.3	5.3
TP6011	5.2	5.2	5.2
TP6014	0	0	0
TP6016	3.5	3.5	3.5
TP6017	0	0	5.3
TP6018	5.2	5.3	0
TP6019	0	0	5.3
TP6201	2.3	0.2	0
TP6202	2.4	2.5	4.1
TP6203	2.5	2.6	2.6
TP6204	1.1	1.2	5.3
TP6205	2.6	2.6	0.1
TP6206	2.9	2.6	2.6
TP6207	2.5	2.6	2.6
TP6208	2.5	2.6	4.1
TP6209	2.3	2.5	2.6
TP6210	2.3	0.8	2.3
TP6301	0	0	0
TP6302	4.8	4.7	5.0
TP6303	5.1	5.1	5.2
TP6304	5.1	5.2	5.2
TP6305	0	---	-2.7
TP6306	5.1	5.2	5.2

CAPSTAN STATOR C.B.A.

MODE / PIN NO.	REC	PLAY	STOP
P2502			
1	13.6	13.6	14.3
2	5.2	5.2	5.2
3	5.3	5.3	5.3
4	2.5	2.4	2.6
5	0	0	0
6	2.6	2.6	2.6
7	0	0	0
8	0.5	0.5	0.5
9	2.6	2.6	2.6
10	0.1	0.1	2.6
11	0	0	0
12	0	0	0
P2503			
1	1.8	1.7	1.5
2	1.8	1.7	1.5

HEAD AMP C.B.A. (A)

MODE / PIN NO.	REC	PLAY
IC3501		
1	2.6	2.6
2	0	0
3	0	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0	1.4
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	---	---
14	5.9	0.1
15	5.9	0.1
16	5.9	0.1
17	5.9	0.1
18	6.3	0
19	---	---
20	---	---
21	---	---
22	0	0
23	0	0
24	0	0
25	11.8	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.7	0
31	5.1	0
32	0	0
33	0	0
34	0	0
35	11.9	12.0
36	0.3	4.9
TP3501	0	0

HEAD AMP C.B.A. (B,C,D)

MODE / PIN NO.	REC	PLAY
IC3501		
1	2.6	2.6
2	0.2	4.2
3	0	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0	1.4
8	0	0
9	0	0
10	0	2.1
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	5.9	0
17	5.9	0.1
18	6.3	0
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	11.8	0
26	5.0	5.2
27	0	0
28	0	0
29	0	0
30	2.7	0
31	5.1	0
32	5.0	0.3
33	0	0
34	0.2	0.4
35	11.9	12.0
36	0.3	4.9
TP3501	0	0

Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.(E,F)

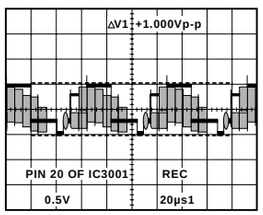
MODE / PIN NO.	REC	PLAY
IC3501		
1	2.6	2.6
2	0.2	4.2
3	0	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0	1.4
8	0	0
9	0	0
10	0	2.1
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	5.9	0
17	5.9	0.1
18	6.3	0
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	11.8	0
26	5.0	5.2
27	0	0
28	0	0
29	0	0
30	2.7	0
31	5.1	0
32	5.0	0.3
33	0	0
34	0.2	0.4
35	11.9	12.0
36	0.3	4.9
TP3501	0	0

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

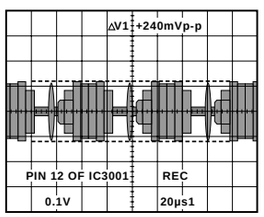
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z

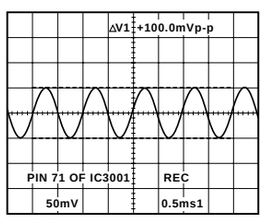
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



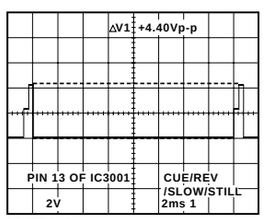
WF1



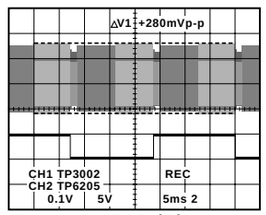
WF6



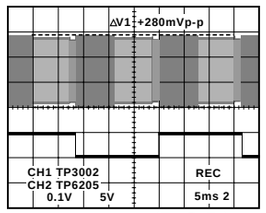
WF9



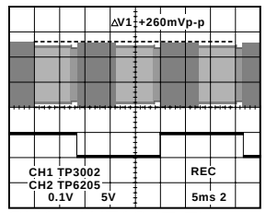
WF14



CH1 WF18 (A)
CH2 WF22 (A)



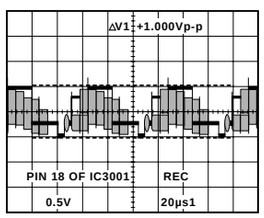
CH1 WF18 (B,C,D)
CH2 WF22 (B,C,D)



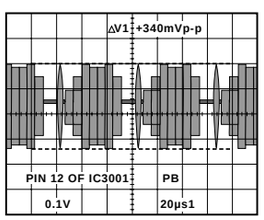
CH1 WF18 (E,F)
CH2 WF22 (E,F)

COMPARISON CHART
OF MODELS & MARKS

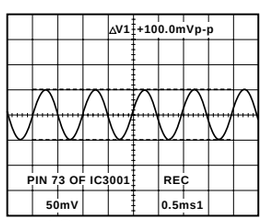
MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z



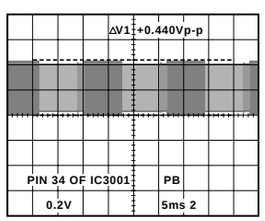
WF2



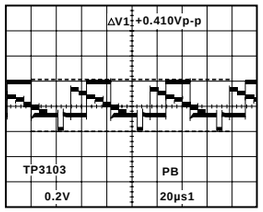
WF6



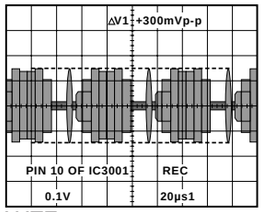
WF10



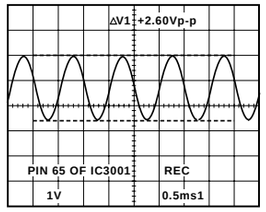
WF15



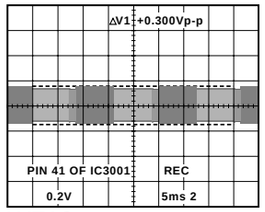
WF3



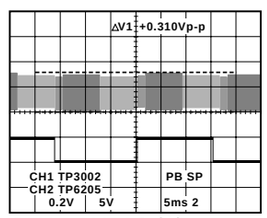
WF7



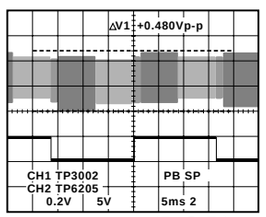
WF11



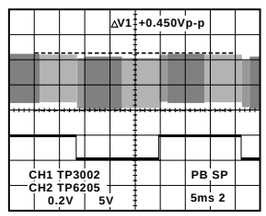
WF16



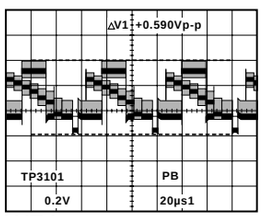
CH1 WF18 (A)
CH2 WF22 (A)



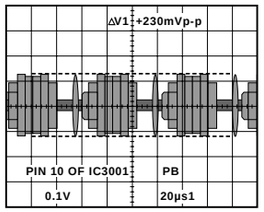
CH1 WF18 (B,C,D)
CH2 WF22 (B,C,D)



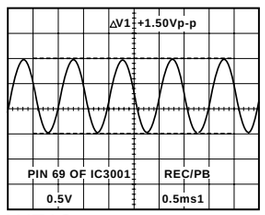
CH1 WF18 (E,F)
CH2 WF22 (E,F)



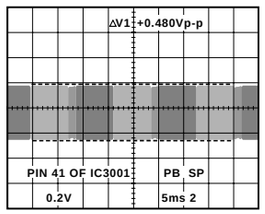
WF4



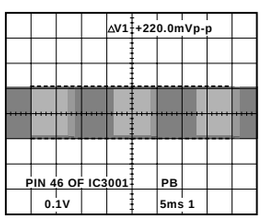
WF7



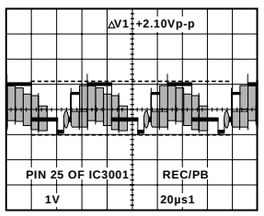
WF12



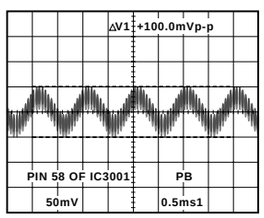
WF16



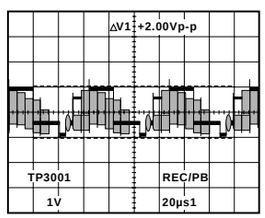
WF5



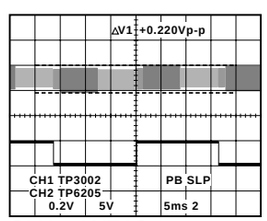
WF8



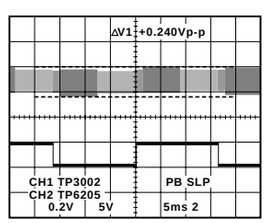
WF13



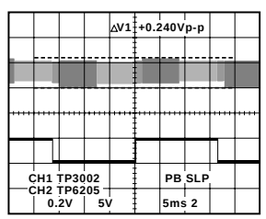
WF17



CH1 WF18 (A)
CH2 WF22 (A)

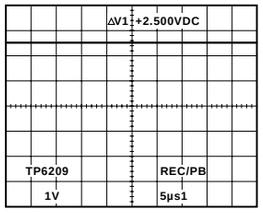


CH1 WF18 (B,C,D)
CH2 WF22 (B,C,D)

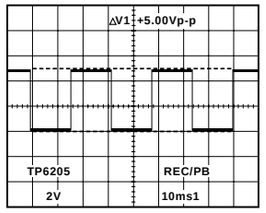


CH1 WF18 (E,F)
CH2 WF22 (E,F)

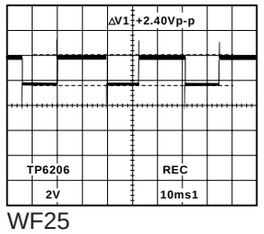
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



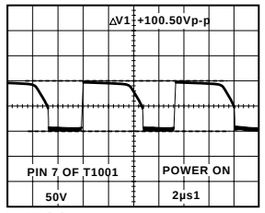
WF19



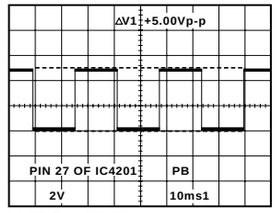
WF22



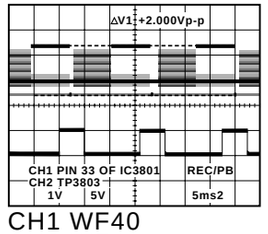
WF25



WF29

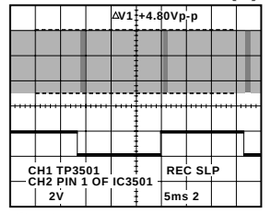


WF34 (E,F)



CH1 WF40
CH2 WF41

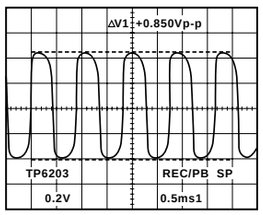
HEAD AMP C.B.A. (A)



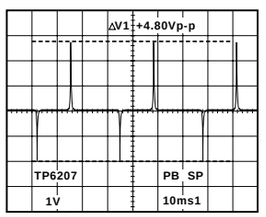
CH1 WF45
CH2 WF46

COMPARISON CHART
OF MODELS & MARKS

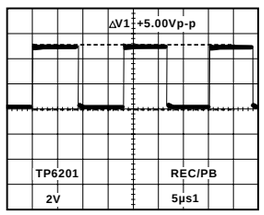
MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F
Not Used	Z



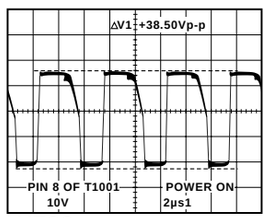
WF20



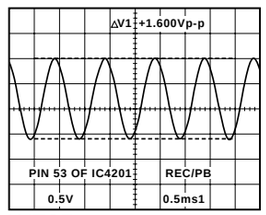
WF23



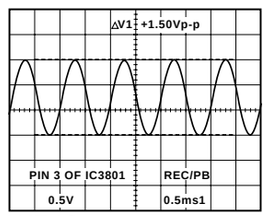
WF26



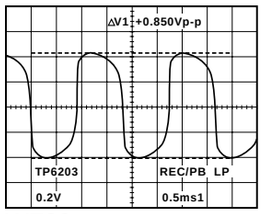
WF30



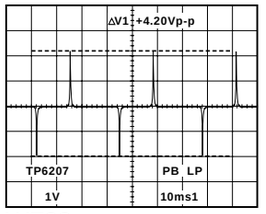
WF35 (E,F)



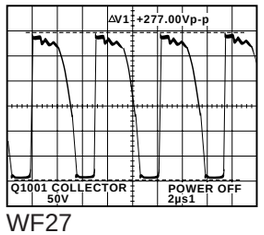
WF42



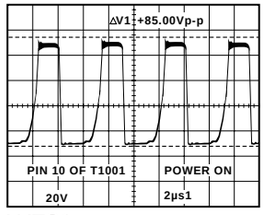
WF20



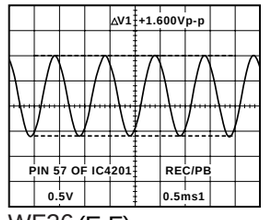
WF23



WF27

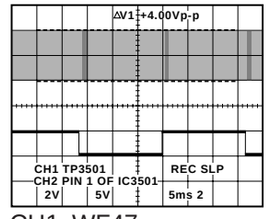


WF31

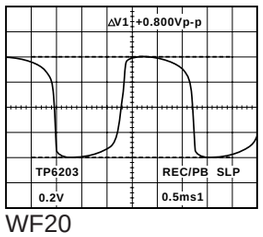


WF36 (E,F)

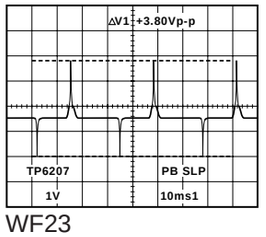
HEAD AMP C.B.A. (B,C,D)



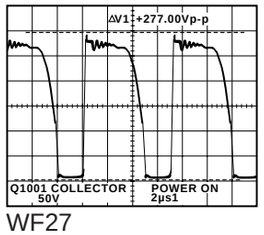
CH1 WF47
CH2 WF48



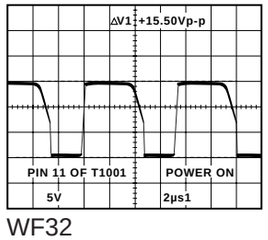
WF20



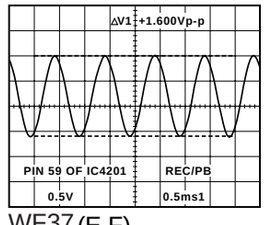
WF23



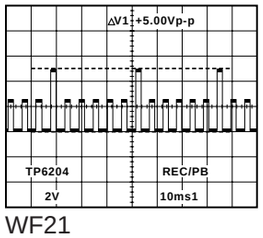
WF27



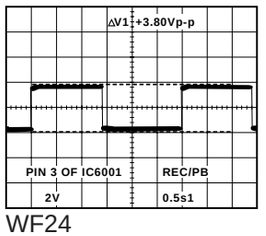
WF32



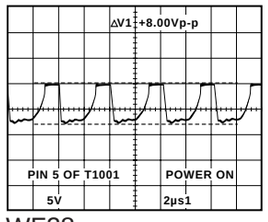
WF37 (E,F)



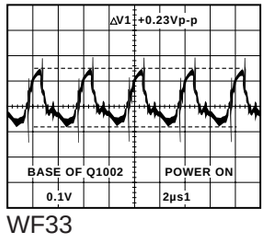
WF21



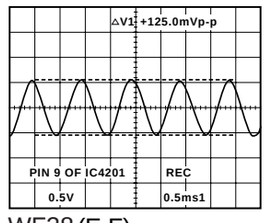
WF24



WF28

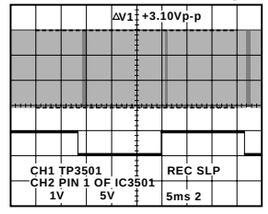


WF33



WF38 (E,F)

Hi-Fi AUDIO / VIDEO
HEAD AMP C.B.A. (E,F)



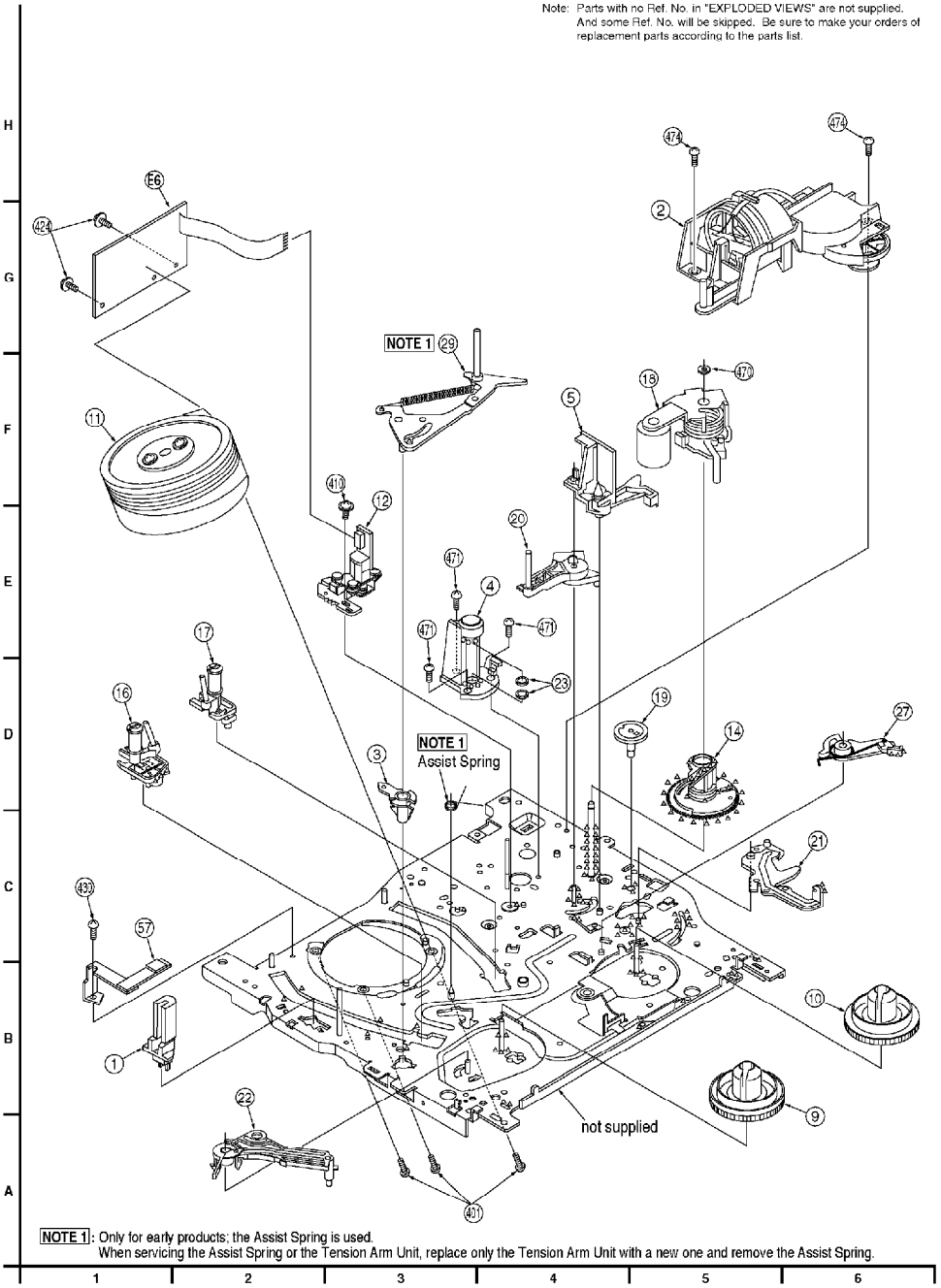
CH1 WF49
CH2 WF50

❶ MECHANISM (TOP) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
○○○	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
△△△	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied.
And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



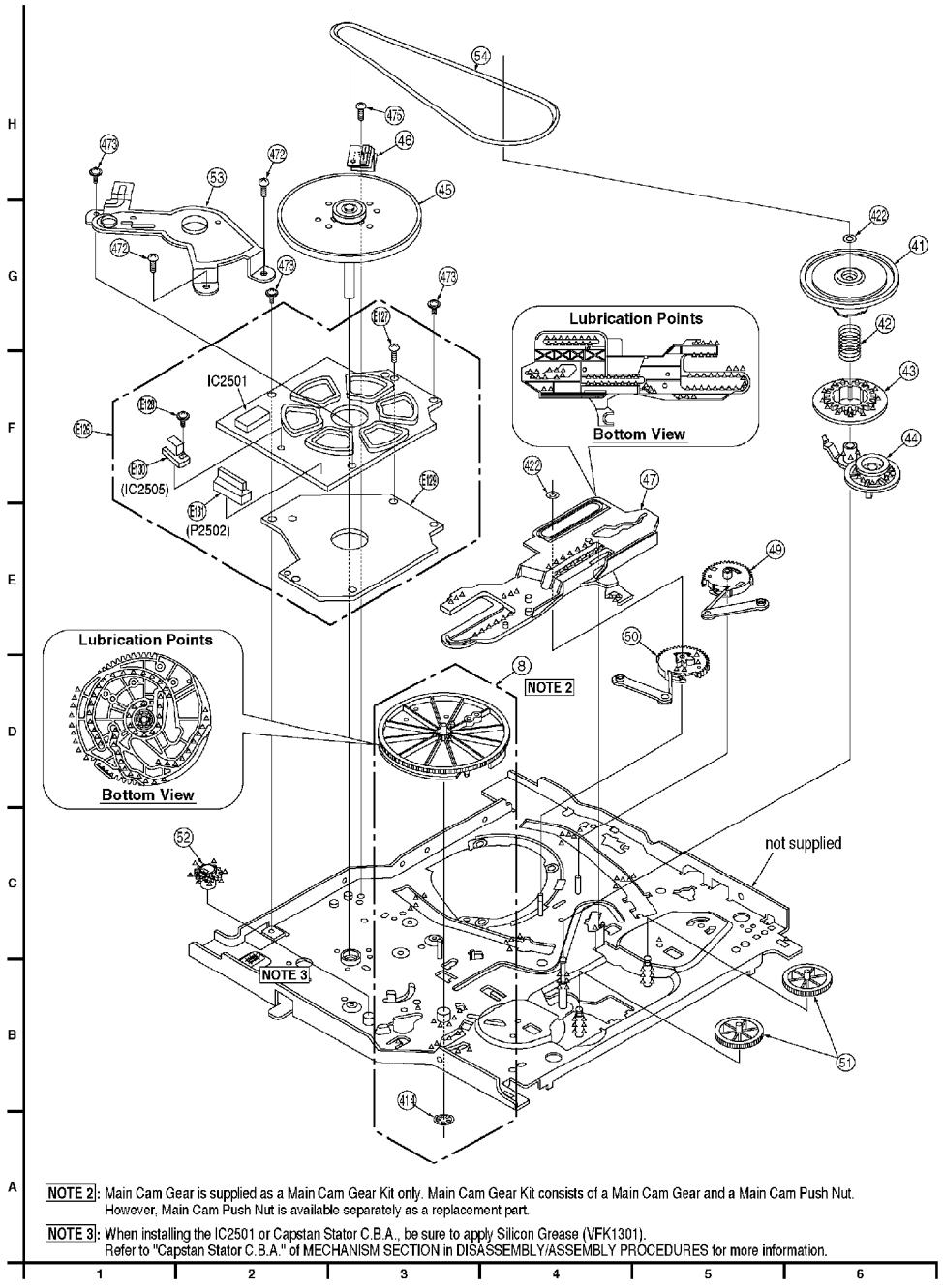
NOTE 1: Only for early products; the Assist Spring is used.
When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.

10.2. MECHANISM (BOTTOM) SECTION

❷ MECHANISM (BOTTOM) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
ΔΔΔ	Grease	Available from Factory	VFKS0081



NOTE 2: Main Cam Gear is supplied as a Main Cam Gear Kit only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.

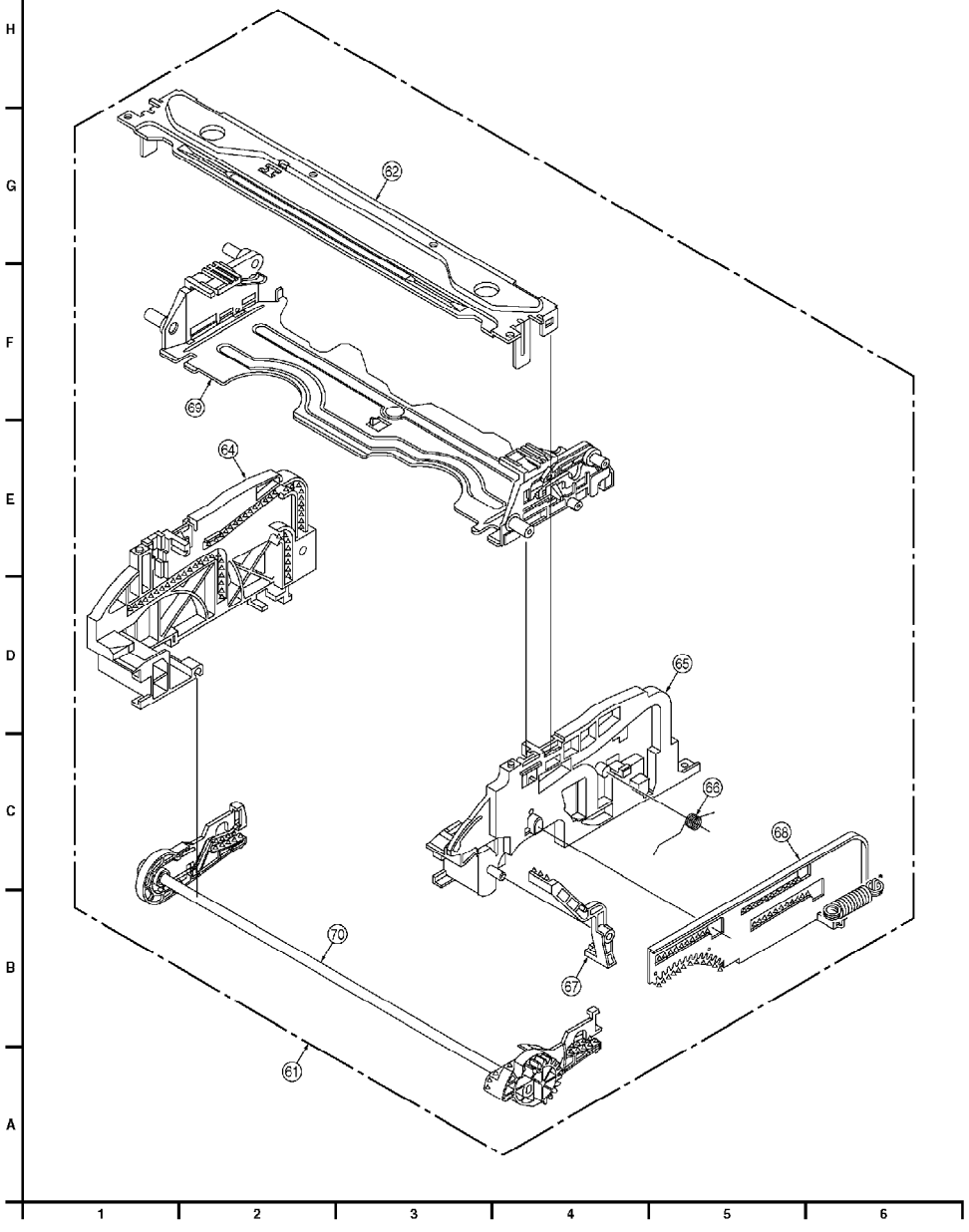
NOTE 3: When installing the IC2501 or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES for more information.

10.3. CASSETTE UP COMPARTMENT SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081

❸ CASSETTE UP COMPARTMENT SECTION



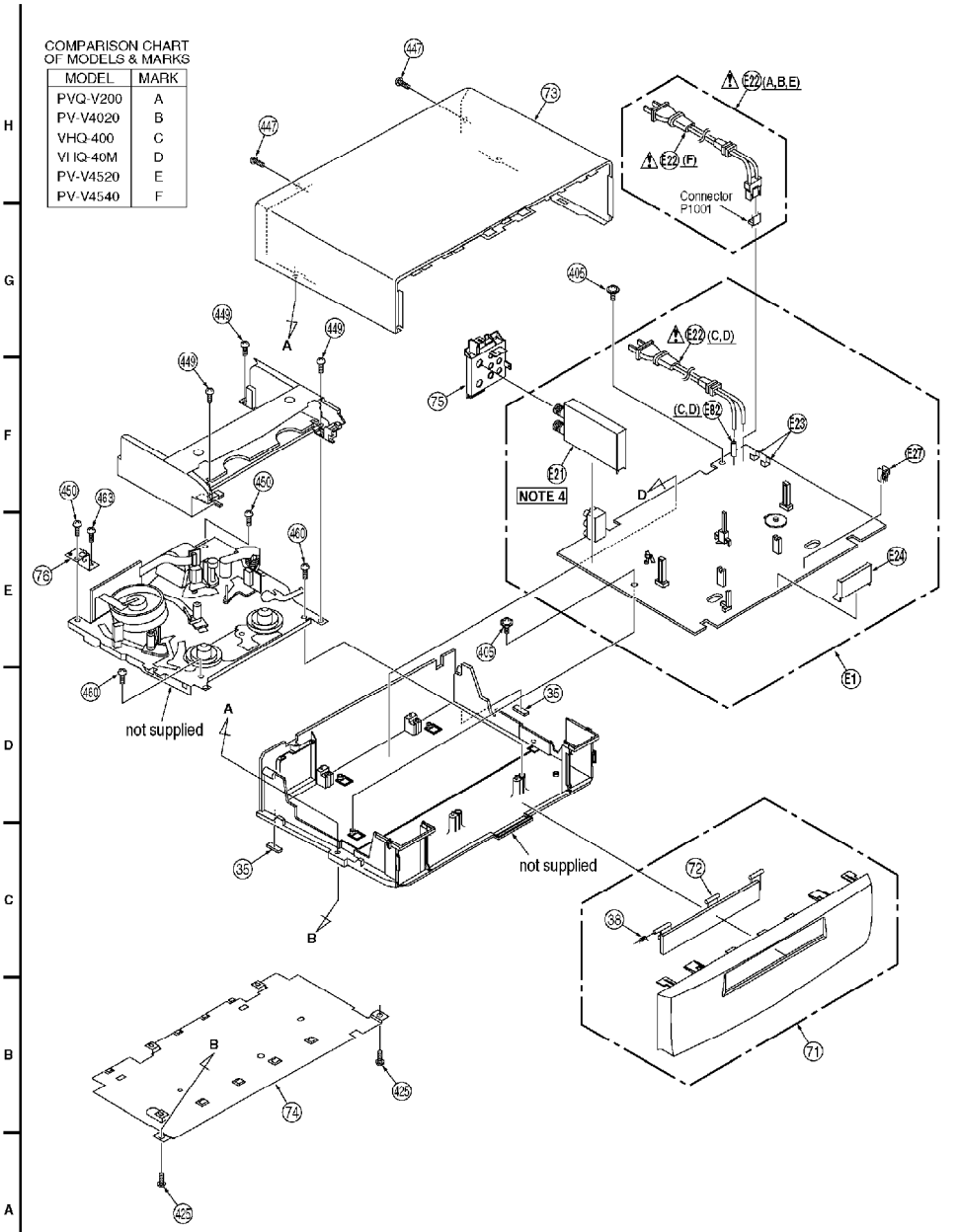
10.4. CHASSIS FRAME AND CASING PARTS SECTION

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

❹ CHASSIS FRAME AND CASING PARTS SECTION

COMPARISON CHART OF MODELS & MARKS

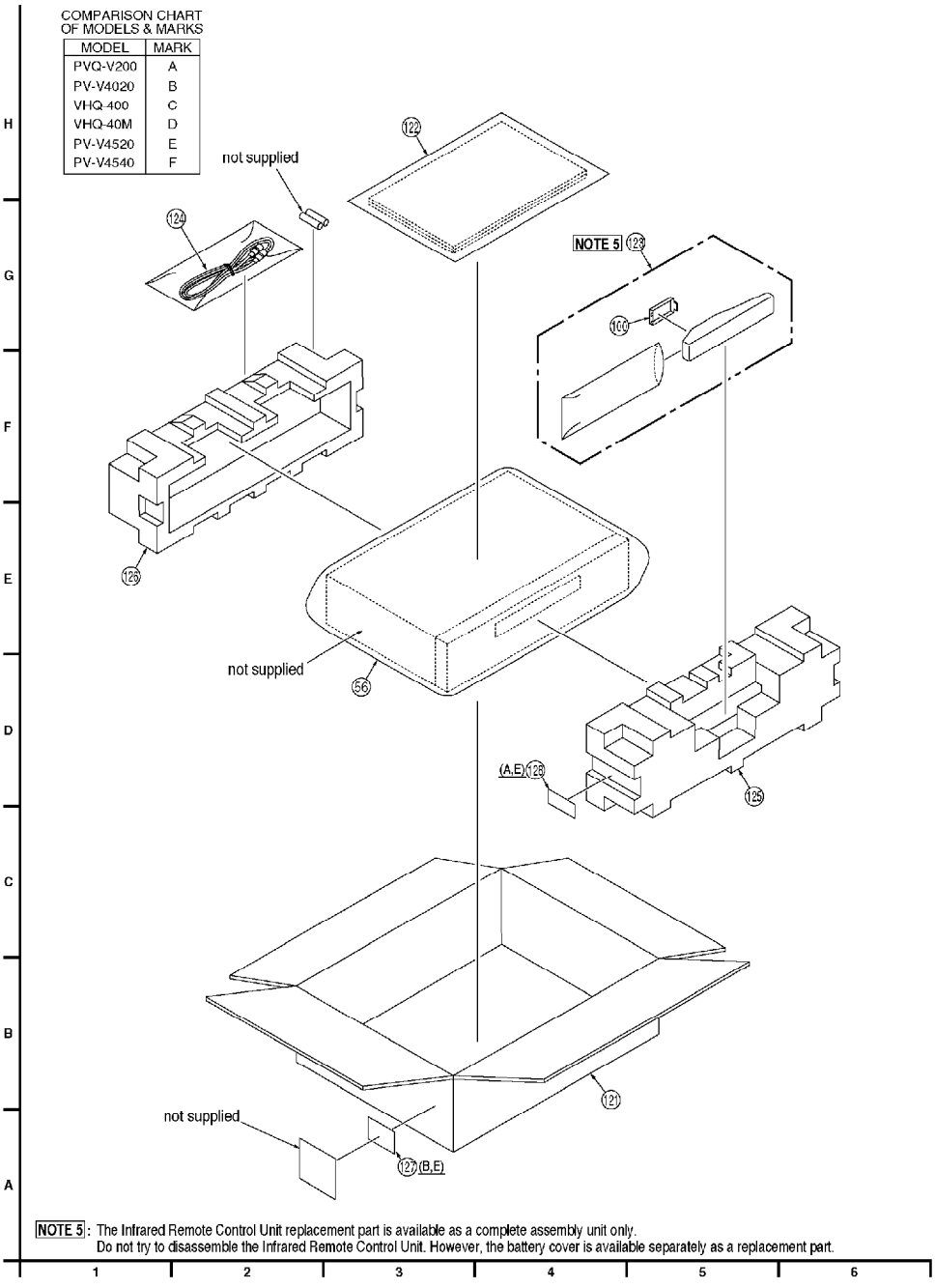
MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F



NOTE 4: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

10.5. PACKING PARTS AND ACCESSORIES SECTION

❺ PACKING PARTS AND ACCESSORIES SECTION


COMPARISON CHART
OF MODELS & MARKS
MODEL | MARK
PVQ-V200 | A
PV-V4020 | B
VHQ-400 | C
VHQ-40M | D
PV-V4520 | E
PV-V4540 | F
not supplied
NOTE 5
not supplied
not supplied
(A,E)
(B,E)
NOTE 5: The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

11. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

11.1. REPLACEMENT NOTES

11.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. **SPECIAL NOTE**
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this servicemanual.
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Parts with mark "MKA" in Remarks column are supplied from MKA. Others are supplied from MKE.**

11.1.2. Mechanical Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacementpart.**
3. **The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is availableseparately as a replacement part.**
4. **Cut Washer (Ref. No. 470) is not reusable.**
   If removed, install a new one.

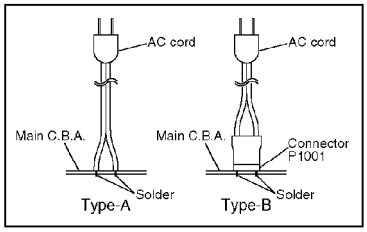
5. Main Cam Push Nut (Ref. No. 414) is not reusable.
   If removed, install a new one.

11.1.3. Electrical Replacement Notes

1. Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views.
2. The parts with " ■ " mark are supplied as a unit, and their individual parts are also supplied separately.
3. Unless otherwise specified;
   All resistors are in Ω , 1/4 W,±5%, carbon, K= 1,000 Ω ,
   M= 1,000 k Ω .
   All capacitors are in μ F, P= μ μ F,±10%.
   All coils are in μ H, M= 1,000 μ H,±10%.
4. Abbreviation
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
   NR: Non Repairable Board Ass'y
   MGF CHIP: Metal Glaze Film Chip
   C CHIP: Ceramic Chip
   COMPLX CMP: Complex Component
   W FLMPRF: Wirewound Flameproof
   C.B.A.: Circuit Board Assembly
   P.C.B.: Printed Circuit Board
   E.S.D.: Electrostatically Sensitive Devices
5. SERVICE OF CHIP PARTS
   When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.
6. The parts with " ■ " are 0 Ω resistor. When replacing, a wire can be substituted for a 0 Ω resistor.
7. Capstan Stator C.B.A. replacement note:
   The following parts on the Capstan Stator C.B.A. (VEMS0331) are not supplied separately. Please order and replace with the circuit

board assembly instead of individual parts.
(Q2501, Q2502, Q2503, Capstan Coil)

8. **When installing the IC2501 (AN3846SC or AN3845SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., and MR Head" of MECHANISM SECTION in DISASSEMBLY/ ASSEMBLYPROCEDURES.**
9. **Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. E21) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/ VHF TUNER/TV DEMODULATORUNIT replacement part is available as a complete assembly unit only.**
10. **AC cord replacement note**
    for models PVQ-V200, PV-V4020, and PV-V4520:
    Either Type-A or B is used as a AC cord for these models. However, for parts standardization and interchangeability, Type-B will be supplied with Connector P1001 as a kit (Part No.: LSJA0281 -S) for replacement. When replacing ACcord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.



11. **Main C.B.A. replacement note**
    for models PVQ-V200, PV-V4020, and PV-V4520:
    VEPS6061AA or VEPS6061AD for PVQ-V200, VEPS6060GA or VEPS6060GB for PV-V4020, VEPS6060HA or VEPS6060HC for PV-V4520 are used as Main C.B.A. However, for parts standardization, only VEPS6061AA for PVQ-V200, VEPS6060GA for PV-V4020and VEPS6060HA for PV-V4520 are supplied as a replacement. Please note that VEPS6061AA and VEPS6061AD, VEPS6060GA and VEPS6060GB, VEPS6060HA and VEPS6060HC

are interchangeable. Only interchangeable part is supplied as a replacement.

12. EEPROM IC (IC6005), Main C.B.A. replacement note:
After replacing EEPROM IC (IC6005) or Main C.B.A., be sure to perform the "PG SHIFTER ADJUSTMENT" in ELECTRICAL ADJUSTMENT procedures.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-V200	A
PV-V4020	B
VHQ-400	C
VHQ-40M	D
PV-V4520	E
PV-V4540	F

11.2. MECHANICAL REPLACEMENT PARTS LIST

11.2.1. MECHANISM PARTS ON CHASSIS

Ref. No.	Part No.	Part Name& Description	Remarks
1	VBSS0033	FULL ERASE HEAD	1
2	VXKS0890	MOTOR BLOCK UNIT	1
3	LSDB0045	TENSION ARM BOSS	1
4	VXDS0212	CAPSTAN HOLDER UNIT	1
5	LSMD0209	OPENER PIECE	1
8	VVGS0009	MAIN CAM GEAR KIT	2
9	LSDR0004	S REEL TABLE	1
	OR LSDR0002	S REEL TABLE	1
10	LSDR0005	T REEL TABLE	1
	OR LSDR0003	T REEL TABLE	1
11		CYLINDER UNIT	
	VEGS0427	(A)	1
	VEGS0428	(B,C,D)	1
	VEGS0429	(E,F)	1
12	VEHS0583	AUDIO CONTROL/ERASE HEAD UNIT	1
14	LSDG0112	LIFT GEAR	1
16	VXDS0213	LOADING POST BASE-S UNIT	1
17	VXDS0214	LOADING POST BASE-T UNIT	1
18	VXLS1094	PINCH ARM UNIT	1
19	LSDG0110	INTERMEDIATE GEAR A	1
20	VXLS1101	P5 ARM UNIT	1
21	LSML0131	DRIVE RACK ARM	1
22	VXLS1103	TENSION CONTROL ARM UNIT	1
23	LSMX0129	OIL SEAL	1
27	VXLS1100	T BRAKE UNIT	1
29	VXLS1102	TENSION ARM UNIT	1
35	LSKA0012	RUBBER FOOT	4
38	LSMB0217	CASSETTE DOOR SPRING	4
41	VXPS0389	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	LSDG0114	CHANGING GEAR	2

Ref. No.	Part No.	Part Name& Description	Remarks
44	VXLS1091	IDLER ARM UNIT	2
45	VXPS0391	CAPSTAN ROTOR UNIT	2
46	LSMA0387	STOPPER ANGLE	2
47	LSMM0002	MAIN ROD	2
49	VXLS1099	S LOADING ARM UNIT	2
50	VXLS1098	T LOADING ARM UNIT	2
51	LSDG0116	REEL GEAR	2
52	LSDG0111	INTERMEDIATE GEAR B	2
53	LSMA0423	SUPPORT ANGLE	2
54	LSDV0007	CAPSTAN BELT SUQARE,RUBBER 2MM	2
56	LSPF0056	SHEET,POLYETHYLENE	5
57	LSSA0003	GROUNDING PLATE	1
61	VXYS1347	CASSETTE UP ASS'Y	3
62	LSMA0352	TOP PLATE	3
64	LSMD0174	SIDE PLATE L	3
65	LSMD0173	SIDE PLATE R	3
66	LSMB0218	SUPPORT SPRING	3
67	LSML0096	OPENER LEVER	3
68	VXLS1111	DRIVE RACK UNIT	3
69	VXAS4423	HOLDER UNIT	3
70	VXLS1110	WIPER ARM UNIT	3
71		FRONT PANEL ASS'Y	
	VYPS7046	(A)	4
	VYPS7053	(B)	4
	VYPS7047	(C)	4
	VYPS7066	(D)	4
	VYPS7041	(E)	4
	VYPS7054	(F)	4
72		CASSETTE DOOR-LID UNIT	
	VYPS6878	(A)	4
	VYPS7056	(B)	4
	VYPS7043	(C)	4
	VYPS7064	(D)	4
	VYPS7055	(E,F)	4
73	LSKM0255	TOP COVER	4
74		BOTTOM PANEL	
	LSKU0010	(A,B,C,D)	4
	LSKU0011	(E,F)	4
75		REAR PANEL	
	LSGP0183	(A,B,C,D)	4
	LSGP0182	(E,F)	4
76	LSSC0332	CHASSIS ANGLE	4
100	VKFS2235	BATTERY COVER	5
121		PACKING CASE,PAPER	
	LSPG0752	(A)	5
	LSPG0714	(B)	5
	LSPG0722	(C)	5
	LSPG0804	(D)	5
	LSPG0706	(E)	5
	LSPG0716	(F)	5
122		FAN BAG	
	LSQF0190	(A)	5
	LSQF0191	(B,E)	5
	LSQF0196	(C)	5

Ref. No.	Part No.	Part Name& Description	Remarks
	LSQF0243	(D)	5
	LSQF0192	(F)	5
123		INFRARED REMOTE CONTROL UNIT	
	LSSQ0207	(A)	5
	LSSQ0206	(B)	5
	LSSQ0209	(C,D)	5
	LSSQ0205	(E)	5
	LSSQ0217	(F)	5
124	VJAS0212	VHF CONNECTING CABLE W/PLUG	5
125	LSPN0153	FRONT CUSHION,STYROFOAM	5
126	LSPN0150	REAR CUSHION,STYROFOAM	5
127		CHECK POINT LABEL	
	CPS-1C	(B,E)	5
128		SECURITY TUG	
	N9ZZ00000027	(A,E)	5

11.2.2. SCREWS AND WASHERS

Ref. No.	Part No.	Part Name& Description	Remarks
401	VHDS0475	SCREW,STEEL	1
405	VHDS0496	SCREW W/WASHER,STEEL	4
410	VHDS0498	SCREW W/WASHER,STEEL	1
414	VHNS0070	MAIN CAM PUSH NUT,STEEL	2
422	XWGV2D5G	WASHER,NYLON	2
424	XYC26+SF6J	SCREW W/WASHER,STEEL	1
425	XTB3+12A	TAPPING SCREW,STEEL	4
430	XTV26+6FFZJ	TAPPING SCREW,STEEL	1
447	VHDS0310	SCREW,STEEL	4
449	VHDS0493	TAPPING SCREW,STEEL	4
450	VHDS0309	SCREW,STEEL	4
460	XTN4+12A	TAPPING SCREW,STEEL	4
463	VHDS0455	SCREW W/WASHER,STEEL	4
470	LSMX0135	CUT WASHER,NYLON	1
471	XSN26+5	SCREW,STEEL	1
472	XTN26+5FJ	TAPPING SCREW,STEEL	2
473	XYN26+C6	SCREW,W/WASHER,STEEL	2
474	LSHD0056	TAPPING SCREW,STEEL	1
475	XTV26+5FJ	TAPPING SCREW,STEEL	2

11.2.3. SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name& Description	Remarks
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	

11.3. ELECTRICAL REPLACEMENT PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name& Description	Remarks
E1	VEPS6061AA	MAIN C.B.A.	■ E.S.D. RTL
	(A)		
E1	VEPS6060GA	MAIN C.B.A.	■ E.S.D. RTL
	(B)		
E1	VEPS6061GC	MAIN C.B.A.	■ E.S.D. RTL
	(C)		
E1	VEPS6060GC	MAIN C.B.A.	■ E.S.D. RTL
	(D)		
E1	VEPS6060HA	MAIN C.B.A.	■ E.S.D. RTL
	(E)		
E1	VEPS6060HB	MAIN C.B.A.	■ E.S.D. RTL
	(F)		
E126	VEMS0331	CAPSTAN STATOR C.B.A. NR	■
E6	VEPS5034A	HEAD AMP C.B.A.	■ RTL
	(A)		
E6	VEPS5033A	HEAD AMP C.B.A.	■ RTL
	(B,C,D)		
E6	VEPS5032A	Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.	■ RTL
	(E,F)		

11.3.1. MAIN C.B.A. (A,C) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC1001	PS2501-1-X	IC, LINEAR ERROR V. DET	⚠
	OR 0N3131-R.KT	IC, LINEAR ERROR V. DET	⚠
	OR 0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC2601	AN3808K	IC, LINEAR CYLINDER MOTOR DRIVE	
IC3001	AN3479FBP-A	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC6001	MN101D02FPN3	IC, 8BIT MICROCONTROLLER	E.S.D.
IC6002	SG-PK01	REEL SENSOR	
IC6003	SG-PK01	REEL SENSOR	
IC6005	KS24C011CS	IC, 1K EEP ROM MEMORY	E.S.D.
	OR KS24C011IS	IC, 1K EEP ROM MEMORY	E.S.D.
	OR M24C01-MN6	IC, 1K EEP ROM MEMORY	E.S.D.
IC6301	DN8657S-E1	IC, LOGIC OTHER	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
Q1001	2SC4533LP.KT		⚠
	OR 2SC5130LF608		⚠
Q1002	2SD2259		
Q1003	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q1004	2SA1037K146R	CHIP	
	OR 2SB709A(R,S)	CHIP	
Q1005	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q1051	2SD1581(T)		
	OR 2SD2159(T)		
Q1052	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q1053	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q3001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q4001	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q4002	2SD1819A(R,S)	CHIP	
Q4003	2SD1819A(R,S)	CHIP	
Q4004	DTA114TU	CHIP	
	OR UN5115	CHIP	
Q4006	DTC114TU	CHIP	
	OR UN5215	CHIP	
Q4101	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q6001	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6002	2SB709A(R,S)	CHIP	
Q6003	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6005	2SA1037K146R	CHIP	
	OR 2SB709A(R,S)	CHIP	
Q6006	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6007	DTA143EU	CHIP	
	OR UN511L	CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	
Q6301	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6302	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6303	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6304	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6305	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	

DIODES

Ref. No.	Part No.	Part Name& Description	Remarks
D1001	S1WBA60-4062		⚠
D1002	EG01V1		
	OR ERA18-04V3		
	OR RMPG06J6203		
	(A)		
	EG01		
	OR ERA18-04		
	(C)		
D1003	ERA18-04V3		
	(A)		
	ERA18-04		
	(C)		
D1005	EG01V1		
	OR ERA18-04V3		
	OR RMPG06J6203		
	(A)		
	EG01		
	OR ERA18-04		
	(C)		
D1006	ERB32-01L3		
	OR RU2YXLFC1		
D1007	MA188		
	OR 1SS244T-77		
D1008	EC21QS03L		
	OR SFPJ-63		
D1009	D1FS4		
	OR EC10QS03L		
	OR SFPJ-53		
	OR U1FWJ44N		
D1011	MA4051N-TAKT	ZENER 5.1V	
D1012	MA858		
	OR 1SS135T-77		
D1013	MA165		
	OR 1SS119		
	OR 1SS133T		
D1015	MA7180	ZENER 18V	⚠
	(A)		
	MA2180LA	ZENER 18V	⚠
	OR 1N4746A-T	ZENER 18V	⚠
	OR 1N4746ARL	ZENER 18V	⚠
	(C)		
D1016	MA165		
	OR 1SS119		
	OR 1SS133T		
D1017	ERA15-01V5		
D1051	MA4110N-H	ZENER 11V	
D6001	VEKS5708	SENSOR LED UNIT	
D6003	MA165		
	OR 1SS119		

Ref. No.	Part No.	Part Name& Description	Remarks
	OR 1SS133T		
D6325	MA165		
	OR 1SS119		
	OR 1SS133T		
D6326	MA165		
	OR 1SS119		
	OR 1SS133T		

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R1001	VRESC2TK275T	+-10% 1/2W 2.7M	⚠
	(A)		
	VRESC2TK275	+-10% 1/2W 2.7M	⚠
	OR VRESC2TK275C	+-10% 1/2W 2.7M	⚠
	OR VRESC2TK275T	+-10% 1/2W 2.7M	⚠
	(C)		
R1003	VRESE2TJ334	1/2W 330K	
R1004	ERG2SJW333E	METAL OXIDE 2W 33K	
	(A)		
	ERG2SJ333H	METAL OXIDE 2W 33K	
	(C)		
R1005	ERG1SJW560E	METAL OXIDE 1W 56	
	(A)		
	ERG1SJ560P	METAL OXIDE 1W 56	
	(C)		
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101	100	
R1008	ERDS2TJ392	3.9K	
R1010	ERD25FYJ100T	10	⚠
	OR VRESS4FJ100E	10	⚠
	(A)		
	ERD25FJ100P	10	⚠
	OR ERD25FPJ100P	10	⚠
	OR VRESF4FJ100P	10	⚠
	(C)		
R1011	ERD25FYJ100T	10	⚠
	OR VRESS4FJ100E	10	⚠
	(A)		
	ERD25FJ100P	10	⚠
	OR ERD25FPJ100P	10	⚠
	OR VRESF4FJ100P	10	⚠
	(C)		
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	

Ref. No.	Part No.	Part Name& Description	Remarks
R1025	VRESE2TJ150	1/2W 15	
R1051	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1052	ERDS2TJ153	15K	
R1053	ERDS2TJ153	15K	
R1057	ERDS2TJ331	330	
R1058	ERDS2TJ104	100K	
R1068	ERDS2T0	0	■
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3002	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
R3003	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ561	560	
R3022	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3037	ERJ6GEYG472V	MGF CHIP+-2% 1/10W 4.7K	
	(A)		
R3038	ERJ6GEYG682V	MGF CHIP+-2% 1/10W 6.8K	
	(A)		
R3039	ERJ6GEYG332V	MGF CHIP+-2% 1/10W 3.3K	
	(A)		
R3040	ERJ6GEYG682V	MGF CHIP+-2% 1/10W 6.8K	
	(A)		
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3051	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3052	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3301	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3305	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4013	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

Ref. No.	Part No.	Part Name& Description	Remarks
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4016	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4017	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4018	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R4027	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
R4028	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R4101	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R4102	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6001	ERDS2TJ101	100	
R6003	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6007	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6010	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6016	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6019	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6020	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
	(A)		
R6022	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6024	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6025	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6026	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6028	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6029	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R6030	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6033	ERDS2TJ681	680	
R6035	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6036	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6037	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6038	ERDS2TJ560	56	
R6039	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6052	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6054	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6059	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6062	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(C)		
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(C)		
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(C)		
R6065	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6068	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6071	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6072	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	

Ref. No.	Part No.	Part Name& Description	Remarks
R6076	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6077	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6078	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6079	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6080	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6089	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6100	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6114	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6115	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6116	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6228	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6231	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R6346	ERDS2TJ470	47	
R6364	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6365	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6366	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6367	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6368	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6369	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6370	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R6371	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6373	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6374	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6375	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6376	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6377	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6378	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6379	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6380	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6381	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6382	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7001	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7004	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7006	ERJ6GEYJ112V	MGF CHIP 1/10W 1.1K	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C1001	ECKNTS103MF8	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC+80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC+-20% 125V 0.01	⚠
	(A)		
	ECKATS103MF	CERAMIC+-20% 250V 0.01	⚠
	OR ECKETS103MF	CERAMIC+-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC+-20% 125V 0.01	⚠ MKA
	(C)		
C1002	ECKNNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC+-20% 125V 3300P	⚠
	(A)		
	ECKATS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR ECKDNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKETS332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEKD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEVD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKST3G332MX	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSU3D332MX	CERAMIC+-20% 125V 3300P	⚠ MKA
	(C)		
C1003	ECKNNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC+-20% 125V 3300P	⚠
	(A)		
	ECKATS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR ECKDNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKETS332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEKD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEVD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKST3G332MX	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSU3D332MX	CERAMIC+-20% 125V 3300P	⚠ MKA
	(C)		
C1004	ECEA2DU820YB	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820B	ELECTROLYTIC 200V 82	⚠
	OR VCESR2D820XB	ELECTROLYTIC 200V 82	⚠
	(A)		
	ECEA2DU820YE	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820E	ELECTROLYTIC 200V 82	⚠ MKA
	OR VCESR2D820XE	ELECTROLYTIC 200V 82	⚠
	(C)		
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7	

Ref. No.	Part No.	Part Name& Description	Remarks
C1006	ECKW2H221KB5	CERAMIC 500V 220P	
C1007	VCUSQAH224KB	C CHIP 50V 0.22	
C1009	VCYSBRE183KX	CERAMIC 25V 0.018	
C1010	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C1011	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7V	
C1012	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1013	ECA1EM331B	ELECTROLYTIC 25V 330	
C1014	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7V	
C1016	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C1018	ECUV1C104KBN	C CHIP 16V 0.1	
C1019	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1021	EEUGA1H1R0H	ELECTROLYTIC 50V 1	
C1023	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
C1025	ECKNRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR ECKNTS101MB	CERAMIC+-20% 250V 100	⚠
	OR VCKSTNG101KW	CERAMIC 125V 100P	⚠
	OR VCKSUND101KW	CERAMIC 125V 100P	⚠
	(A)		
	ECKATS101MB	CERAMIC+-20% 250V 100P	⚠
	OR ECKDRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR ECKETS101MB	CERAMIC+-20% 125V 100P	⚠
	OR ECKMRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR VCKSEJD101KW	CERAMIC 125V 100P	⚠
	OR VCKSTJG101KW	CERAMIC 125V 100P	⚠
	OR VCKSTLG101KW	CERAMIC 125V 100P	⚠
	OR VCKSUJD101KW	CERAMIC 125V 100P	⚠
	OR VCKSULD101KW	CERAMIC 125V 100P	⚠
	(C)		
C1027	ECKNTS103MF8	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC+80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC+-20% 125V 0.01	⚠
	(A)		
	ECKATS103MF	CERAMIC+-20% 250V 0.01	⚠
	OR ECKETS103MF	CERAMIC+-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC+-20% 125V 0.01	⚠ MKA
	(C)		
C1029	ECUV1H222KBN	C CHIP 50V 2200P	
C1030	VCYSBRE183KX	CERAMIC 25V 0.018	
C1032	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C1058	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1059	ECEA1CKA470	ELECTROLYTIC 16V 47	
C2601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2602	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	

Ref. No.	Part No.	Part Name& Description	Remarks
C2603	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2604	ECUV1C104KBN	C CHIP 16V 0.1	
C2605	ECUV1C104KBN	C CHIP 16V 0.1	
C2606	ECUV1C104KBN	C CHIP 16V 0.1	
C2607	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C2611	ECUV1H103KBN	C CHIP 50V 0.01	
C2612	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3014	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP+-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3021	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C3022	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3023	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3027	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3030	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C3035	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3044	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3045	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP+-5% 50V 180P	
C3048	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3049	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3051	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3052	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3053	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3057	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3058	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3059	ECUV1H020CCN	C CHIP+-0.25P 50V 2P	
C3062	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3101	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3102	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	

Ref. No.	Part No.	Part Name& Description	Remarks
C3105	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3302	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3303	ECUV1H121JCN	C CHIP+-5% 50V 120P	
C3306	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3308	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C4001	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H272KBN	C CHIP 50V 2700P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4015	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C4018	ECEA1HKS010	ELECTROLYTIC 50V 1	
C4030	ECUV1C105ZFN	C CHIP+80%-20% 16V 1	
C4102	ECQB1562JF	POLYESTER+-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C6001	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6003	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6005	ECUV1H150JCN	C CHIP+-5% 50V 15P	
C6006	ECUV1H100CCN	C CHIP+-0.25P 50V 10P	
C6016	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6026	ECUV1H102KBN	C CHIP 50V 1000P	
C6027	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6033	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6208	ECUV1C104KBN	C CHIP 16V 0.1	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6228	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6231	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6305	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6306	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6307	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6320	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6321	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	

Ref. No.	Part No.	Part Name& Description	Remarks
C7001	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C7005	ECUV1E183KBN	C CHIP 25V 0.018	
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	

COILS

Ref. No.	Part No.	Part Name& Description	Remarks
L1001	ELF15N005AB	LINE FILTER 0.5A 18M	⚠
	OR VLQS0166	LINE FILTER 0.5A 18M	⚠
	OR VLQS0167	LINE FILTER 0.5A 18M	⚠
	(A)		
	ELF15N005A	LINE FILTER 0.5A 18M	⚠
	OR LSLQ0287	LINE FILTER 0.5A 18M	⚠
	OR VLQS0166	LINE FILTER 0.5A 18M	⚠
	OR VLQS0167	LINE FILTER 0.5A 18M	⚠
	OR VLQS0170	LINE FILTER 0.6A 18M	⚠
	(C)		
L1002	VLQSAB7D220K	22	
L1003	VLQSAB7D100K	10	
L1006	VLPS0083		
L3014	VLQSH02R390K	39	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L4001	ELELN153KA	15M	
L4101	ELESN471KA	470	
L6002	ELEXT101KE04	100	
L6301	ELESN101KA	100	
L6302	ELESN470KA	47	
L6303	ERDS2TJ3R3	3.3	
L7001	VLQSAB7D220K	22	
L7003	VLQSH02R101K	100	
L7005	VLPS0092	CHIP	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name& Description	Remarks
X3010	VSXS0195		
X6001	VSXS0232-TB		

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P1001	LSJP0807	CONNECTOR 2P	
	(A)		
P3551	LSJP0085	CONNECTOR 10P	
	(A)		
	VJPS0882	CONNECTOR 12P	
	(C)		
P4001	VJSS0888	FE CONNECTOR 2P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

SWITCHES

Ref. No.	Part No.	Part Name& Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0012	MODE SELECT SWITCH	
SW6301	EVQ11A09K	PUSH SWITCH	
SW6303	EVQ11A09K	PUSH SWITCH	
SW6306	EVQ11A09K	PUSH SWITCH	
SW6307	EVQ11A09K	PUSH SWITCH	
SW6309	EVQ11A09K	PUSH SWITCH	
SW6311	EVQ11A09K	PUSH SWITCH	
SW6313	EVQ11A09K	PUSH SWITCH	
SW6314	EVQ11A09K	PUSH SWITCH	
SW6316	EVQ11A09K	PUSH SWITCH	

FUSE& PROTECTOR

Ref. No.	Part No.	Part Name& Description	Remarks
F1001	VSFS0003A16	FUSE 125V 1.6A	⚠
	OR VSFS0032B16	FUSE 125V 1.6A	⚠
	OR XBA1C16NU100	FUSE 125V 1.6A	⚠
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR LSSF009A25E	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR LSSF009A25E	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1003	LSSF009AR37E	IC PROTECTOR 1.5A	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name& Description	Remarks
T1001	ETS28AD2J3NP		⚠
	ORETS28AD2J3PP		⚠
	OR VTPS0041-1		⚠
	OR VTPS0041-2		⚠
	(A)		
	ETS28AD2J3NC		⚠
	OR ETS28AD2J3PC		⚠
	OR VTPS0041-1		⚠
	OR VTPS0041-2		⚠
	OR VTPS0042-1		⚠
	OR VTPS0042-2		⚠
	(C)		
T4101	EIQ7QF018Q		

JACKS

Ref. No.	Part No.	Part Name& Description	Remarks
JK3001	LSJH0028	AUDIO/VIDEO JACK SOCKET	

MISCELLANEOUS

Ref. No.	Part No.	Part Name& Description	Remarks
E21	VEQS0614L	TUNER,UHF/VHF NR	
E22	LSJA0262	AC CORD W/PLUG,125V	⚠
	OR LSJA0284	AC CORD W/PLUG,125V	⚠
	(C)		
E23	EYF52BC	FUSE HOLDER	
E24	LNM144AP01	LED DISPLAY PANEL	
E27	PNA4611M03KT	INFRARED RECEIVER UNIT	
E82	4B90376-1=15	CSA TUBE	
	(C)		

11.3.2. MAIN C.B.A. (B,D,E,F) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC1001	PS2501-1-X	IC, LINEAR ERROR V. DET	⚠
	OR 0N3131-R.KT	IC, LINEAR ERROR V. DET	⚠
	OR 0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC2601	AN3808K	IC, LINEAR CYLINDER MOTOR DRIVE	
IC3001	AN3479FBP-A	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC4151	UPD4053BG	IC, CMOS STANDARD LOGIC SWITCHING	E.S.D.
	(D)		
IC4201	AN3662FBP	IC, LINEAR Hi-Fi AUDIO MTS/SAP PROCESS	
	OR AN3662FBP-V	IC, LINEAR Hi-Fi AUDIO MTS/SAP PROCESS	
	(E,F)		
IC6001	MN101D02FPN3	IC, 8BIT MICROCONTROLLER	E.S.D.
	(B,D,E)		
	MN101D02GPP1	IC, 8BIT MICROCONTROLLER	E.S.D.
	(F)		
IC6002	SG-PK01	REEL SENSOR	
IC6003	SG-PK01	REEL SENSOR	
IC6005	KS24C011CS	IC, 1K EEP ROM MEMORY	E.S.D.
	OR KS24C011IS	IC, 1K EEP ROM MEMORY	E.S.D.
	OR M24C01-MN6	IC, 1K EEP ROM MEMORY	E.S.D.
	(B,E,F)		
	LSUQ0019A	IC, 2K EEP ROM MEMORY	E.S.D.
	OR LSUQ0019B	IC, 4K EEP ROM MEMORY	E.S.D.
	OR S24C04AFJA01	IC, 4K EEP ROM MEMORY	E.S.D.
	OR BR24C01AF-E2	IC, 1K EEP ROM MEMORY	E.S.D.
	(D)		
IC6301	DN8657S-E1	IC, LOGIC OTHER	E.S.D.

TRANSISTORS

Ref. No.	Part No.	PartName& Description	Remarks
Q1001	2SC4533LP.KT		⚠
	OR 2SC5130LF608		⚠
Q1002	2SD2259		
Q1003	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q1004	2SA1037K146R	CHIP	
	OR 2SB709A(R,S)	CHIP	
Q1005	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q1051	2SD1581(T)		
	OR 2SD2159(T)		
Q1052	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q1053	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q1070	2SB709A(R,S)	CHIP	
	(D)		
Q1071	2SD601(R,S)	CHIP	
	(D)		
Q3001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q4001	2SA1576A106R	CHIP	

Ref. No.	Part No.	PartName& Description	Remarks
	OR 2SB1218ARS	CHIP	
Q4002	2SD1819A(R,S)	CHIP	
Q4003	2SD1819A(R,S)	CHIP	
Q4004	DTA114TU	CHIP	
	OR UN5115	CHIP	
Q4005	DTC114TU	CHIP	
	OR UN5215	CHIP	
	(E,F)		
Q4006	DTC114TU	CHIP	
	OR UN5215	CHIP	
Q4007	DTC114TU	CHIP	
	OR UN5215	CHIP	
	(E,F)		
Q4101	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q6001	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6002	2SB709A(R,S)	CHIP	
Q6003	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6005	2SA1037K146R	CHIP	
	OR 2SB709A(R,S)	CHIP	
Q6006	2SC4081T106R	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q6007	DTA143EU	CHIP	
	OR UN511L	CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	
Q6301	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6302	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6303	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6304	2SB970	CHIP	
	OR 2SA1036K146Q	CHIP	
	OR 2SA1036K146R	CHIP	
Q6305	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	

DIODES

Ref. No.	Part No.	Part Name& Description	Remarks
D1001	S1WBA60-4062		⚠
D1002	EG01V1		
	OR ERA18-04V3		
	OR RMPG06J6203		
	(B,E,F)		
	EG01		
	OR ERA18-04		
	(D)		
D1003	ERA18-04V3		
	(B,E,F)		
	ERA18-04		
	(D)		
D1005	EG01V1		
	OR ERA18-04V3		
	OR RMPG06J6203		
	(B,E,F)		
	EG01		
	OR ERA18-04		
	(D)		
D1006	ERB32-01L3		
	OR RU2YXLFC1		
	OR ERC30-01L3		
	OR RU3YXLFC1		
D1007	MA188		
	OR 1SS244T-77		
D1008	EC21QS03L		
	OR SFPJ-63		
D1009	D1FS4		
	OR EC10QS03L		
	OR EP10QY03		
	OR SFPJ-53		
	OR U1FWJ44N		
D1011	MA4051N-TAKT	ZENER 5.1V	
D1012	MA858		
	OR 1SS135T-77		
D1013	MA165		
	OR 1SS119		
	OR 1SS133T		
D1015	MA7180	ZENER 18V	⚠
	(B,E,F)		
	MA2180LA	ZENER 18V	⚠
	OR 1N4746A-T	ZENER 18V	⚠
	OR 1N4746ARL	ZENER 18V	⚠
	(D)		
D1016	MA165		
	OR 1SS119		
	OR 1SS133T		
D1017	ERA15-01V5		
D1051	MA4110N-H	ZENER 11V	
D1070	MA4056-M	ZENER 5.6V	
	(D)		
D3006	MA4051-M	ZENER 5.1V	
	OR 04AZ5.1ZTPA7	ZENER 5.1V	

Ref. No.	Part No.	Part Name& Description	Remarks
	(D,F)		
D3007	MA4051-M	ZENER 5.1V	
	OR 04AZ5.1ZTPA7	ZENER 5.1V	
	(D,F)		
D4209	MA165		
	OR 1SS119		
	OR 1SS133T		
	(E,F)		
D6001	VEKS5708	SENSOR LED UNIT	
D6003	MA165		
	OR 1SS119		
	OR 1SS133T		
D6325	MA165		
	OR 1SS119		
	OR 1SS133T		
D6326	MA165		
	OR 1SS119		
	OR 1SS133T		

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R1001	VRESC2TK275T	+-10% 1/2W 2.7M	⚠
	(B,E,F)		
	VRESC2TK275	+-10% 1/2W 2.7M	⚠
	OR VRESC2TK275C	+-10% 1/2W 2.7M	⚠
	OR VRESC2TK275T	+-10% 1/2W 2.7M	⚠
	(D)		
R1003	VRESE2TJ334	1/2W 330K	
R1004	ERG2SJW333E	METAL OXIDE 2W 33K	
	(B,E,F)		
	ERG2SJ333H	METAL OXIDE 2W 33K	
	(D)		
R1005	ERG1SJW560E	METAL OXIDE 1W 56	
	(B,E,F)		
	ERG1SJ560P	METAL OXIDE 1W 56	
	(D)		
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101	100	
R1008	ERDS2TJ392	3.9K	
R1010	ERD25FYJ100T	10	⚠
	OR VRESS4FJ100E	10	⚠
	(B,E,F)		
	ERD25FJ100P	10	⚠
	OR ERD25FPJ100	10	⚠
	OR VRESF4FJ100P	10	⚠
	(D)		
R1011	ERD25FYJ100T	10	⚠
	OR VRESS4FJ100E	10	⚠
	(B,E,F)		
	ERD25FJ100P	10	⚠

Ref. No.	Part No.	Part Name& Description	Remarks
	OR ERD25FPJ100	10	⚠
	OR VRESF4FJ100P	10	⚠
	(D)		
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1024	ERD2FCVG330T	+-2% 33	⚠
	(D)		
R1025	VRESE2TJ150	1/2W 15	
R1051	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1052	ERDS2TJ153	15K	
R1053	ERDS2TJ153	15K	
R1057	ERDS2TJ331	330	
R1058	ERDS2TJ104	100K	
R1068	ERDS2T0	0	■
R1070	ERDS2TJ223	22K	
	(D)		
R1071	ERDS2TJ154	150K	
	(D)		
R1072	ERDS2TJ473	47K	
	(D)		
R1073	ERDS2TJ223	22K	
	(D)		
R1074	ERDS2TJ272	2.7K	
	(D)		
R1075	ERDS2TJ272	2.7K	
	(D)		
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3001	ERDS2TJ750	75	
	(D,F)		
R3002	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
R3003	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ561	560	
R3022	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	

Ref. No.	Part No.	Part Name& Description	Remarks
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3051	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3052	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3301	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3305	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(B,D)		
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(B,D)		
	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4013	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
	(B,D)		
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4016	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
	(B,D)		
	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
	(E,F)		
R4017	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(B,D)		
	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4018	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
	(B,D)		
R4027	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
	(B,E,F)		
	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
R4028	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R4101	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R4102	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4154	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
R4201	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(E,F)		
R4202	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(E,F)		
R4203	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
	(E,F)		
R4204	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	

Ref. No.	Part No.	Part Name& Description	Remarks
	(E,F)		
R4205	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(F)		
R4206	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(F)		
R4207	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
	(F)		
R4208	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
	(F)		
R4209	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4210	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4213	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4214	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4218	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
	(E,F)		
R4219	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
	(E,F)		
R4221	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(E,F)		
R4222	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(E,F)		
R4223	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4224	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4225	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4226	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(E,F)		
R4228	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4453	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4455	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(E,F)		
R4901	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R6001	ERDS2TJ101	100	
R6003	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6007	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6010	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6016	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6019	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6022	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6024	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6025	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6026	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name& Description	Remarks
R6028	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6029	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R6030	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6033	ERDS2TJ681	680	
R6035	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6036	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6037	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6038	ERDS2TJ560	56	
R6039	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6052	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6054	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6059	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6062	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6065	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6068	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6071	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6072	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6076	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6077	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6078	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6079	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6080	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6089	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6100	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6114	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6115	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6116	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6228	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6231	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R6346	ERDS2TJ470	47	
R6364	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	

Ref. No.	Part No.	Part Name& Description	Remarks
R6365	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6366	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6367	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6368	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6369	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6370	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R6371	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6373	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6374	ERJ6GEYJ272V	MGFCHIP 1/10W 2.7K	
R6375	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6376	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6377	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6378	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6379	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6380	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6381	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6382	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7001	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(B,D)		
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7004	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7006	ERJ6GEYJ112V	MGF CHIP 1/10W 1.1K	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C1001	ECKNTS103MF8	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC+80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC+-20% 125V 0.01	⚠
	(B,E,F)		
	ECKATS103MF	CERAMIC+-20% 250V 0.01	⚠
	OR ECKETS103MF	CERAMIC+-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC+-20% 125V 0.01	⚠ MKA
	(D)		
C1002	ECKNNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC+-20% 125V 3300P	⚠
	(B,E,F)		
	ECKATS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR ECKDNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKETS332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEKD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEVD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKST3G332MX	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSU3D332MX	CERAMIC+-20% 125V 3300P	⚠ MKA
	(D)		

Ref. No.	Part No.	Part Name& Description	Remarks
C1003	ECKNNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC+-20% 125V 3300P	⚠
	(B,E,F)		
	ECKATS332ME8	CERAMIC+-20% 250V 3300P	⚠
	OR ECKDNB332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR ECKETS332ME8	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEKD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKSEVD332MY	CERAMIC+-20% 125V 3300P	⚠
	OR VCKST3G332MX	CERAMIC+-20% 250V 3300P	⚠
	OR VCKSU3D332MX	CERAMIC+-20% 125V 3300P	⚠ MKA
	(D)		
C1004	ECEA2DU820YB	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820B	ELECTROLYTIC 200V 82	⚠
	OR VCESR2D820XB	ELECTROLYTIC 200V 82	⚠
	(B)		
	ECEA2DU820YE	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820E	ELECTROLYTIC 200V 82	⚠ MKA
	OR VCESR2D820XE	ELECTROLYTIC 200V 82	⚠
	(D)		
	ECEA2DU121YB	ELECTROLYTIC 200V 120	⚠
	OR VCESAN2D121B	ELECTROLYTIC 200V 120	⚠
	OR VCESR2D121XB	ELECTROLYTIC 200V 120	⚠
	(E,F)		
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7	
C1006	ECKW2H221KB5	CERAMIC 500V 220P	
C1007	VCUSQAH224KB	C CHIP 50V 0.22	
C1009	VCYSBRE183KX	CERAMIC 25V 0.018	
C1010	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
	(B,D)		
	ECUV1H101JCN	C CHIP+-5% 50V 100P	
	(E,F)		
C1011	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7V	
C1012	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1013	ECA1EM331B	ELECTROLYTIC 25V 330	
C1014	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7V	
C1016	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C1018	ECUV1C104KBN	C CHIP 16V 0.1	
C1019	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1021	EEUGA1H1R0H	ELECTROLYTIC 50V 1	
C1023	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
C1025	ECKNRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR ECKNTS101MB	CERAMIC+-20% 250V 100	⚠
	OR VCKSTNG101KW	CERAMIC 125V 100P	⚠
	OR VCKSUND101KW	CERAMIC 125V 100P	⚠
	(B,E,F)		
	ECKATS101MB	CERAMIC+-20% 250V 100P	⚠

Ref. No.	Part No.	Part Name& Description	Remarks
	OR ECKDRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR ECKETS101MB	CERAMIC+-20% 125V 100P	⚠
	OR ECKMRS101MBY	CERAMIC+-20% 125V 100P	⚠
	OR VCKSEJD101KW	CERAMIC 125V 100P	⚠
	OR VCKSTJG101KW	CERAMIC 125V 100P	⚠
	OR VCKSTLG101KW	CERAMIC 125V 100P	⚠
	OR VCKSUJD101KW	CERAMIC 125V 100P	⚠
	OR VCKSULD101KW	CERAMIC 125V 100P	⚠
	(D)		
C1027	ECKNTS103MF8	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC+80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC+-20% 125V 0.01	⚠
	(B,E,F)		
	ECKATS103MF	CERAMIC+-20% 250V 0.01	⚠
	OR ECKETS103MF	CERAMIC+-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC+100%-0% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC+-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC+-20% 125V 0.01	⚠ MKA
	(D)		
C1029	ECUV1H222KBN	C CHIP 50V 2200P	
	(B,D)		
	ECUV1H101JCN	C CHIP+-5% 50V 100P	
	(E,F)		
C1030	VCYSBRE183KX	CERAMIC 25V 0.018	
C1032	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C1058	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1059	ECEA1CKA470	ELECTROLYTIC 16V 47	
C1070	ECEA1CKA101	ELECTROLYTIC 16V 100	
	(D)		
C2601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2602	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2603	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2604	ECUV1C104KBN	C CHIP 16V 0.1	
C2605	ECUV1C104KBN	C CHIP 16V 0.1	
C2606	ECUV1C104KBN	C CHIP 16V 0.1	
C2607	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C2611	ECUV1H103KBN	C CHIP 50V 0.01	
C2612	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3014	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP+-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3021	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name& Description	Remarks
C3022	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3023	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3027	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3030	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C3035	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3038	ECEA1HKS2R2	ELECTROLYTIC 50V 2.2	
	(D,F)		
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3044	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3045	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP+-5% 50V 180P	
C3048	ECUV1H560JCN	C CHIP+-5% 50V 56P	
C3049	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3051	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3052	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3053	ECUV1C474ZFV	C CHIP+80%-20% 16V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3057	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3058	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3059	ECUV1H020CCN	C CHIP+-0.25P 50V 2P	
C3062	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3101	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3102	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3105	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3302	ECUV1A105ZFV	C CHIP+80%-20% 10V 1	
C3303	ECUV1H121JCN	C CHIP+-5% 50V 120P	
C3306	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3308	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C4001	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H272KBN	C CHIP 50V 2700P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	

Ref. No.	Part No.	Part Name& Description	Remarks
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4015	ECUV1E104ZFN	CCHIP+80%-20% 25V 0.1	
C4017	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4018	ECEA1HKS010	ELECTROLYTIC 50V 1	
	(B,D)		
C4030	ECUV1C105ZFN	C CHIP+80%-20% 16V 1	
	(B,D,E)		
C4102	ECQB1562JF	POLYESTER+-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4153	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
	(D)		
C4154	ECUV1E104KBN	C CHIP 25V 0.1	
	(D)		
C4201	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
	(E,F)		
C4202	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
	(E,F)		
C4203	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(E,F)		
C4204	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(E,F)		
C4205	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4206	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4207	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4208	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4209	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4210	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4211	ECUV1H153KBN	C CHIP 50V 0.015	
	(E,F)		
C4212	ECUV1H153KBN	C CHIP 50V 0.015	
	(E,F)		
C4213	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4216	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4217	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
	(E,F)		
C4218	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4219	ECEA1HKA010	ELECTROLYTIC 50V 1	

Ref. No.	Part No.	Part Name& Description	Remarks
	(E,F)		
C4227	ECUV1C224ZFV	C CHIP+80%-20% 16V 0.22	
	(E,F)		
C4228	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4229	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
	(E,F)		
C4230	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(E,F)		
C4451	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4452	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4455	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4456	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4459	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(E,F)		
C4901	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4902	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
	(E,F)		
C4903	ECEA1HKA3R3	ELECTROLYTIC 50V 3.3	
	(E,F)		
C4904	ECEA1HKA3R3	ELECTROLYTIC 50V 3.3	
	(E,F)		
C4905	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4906	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4911	ECUV1E223KBN	C CHIP 25V 0.022	
	(E,F)		
C4912	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4913	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4917	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4918	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4919	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C4920	ECUV1C104KBN	C CHIP 16V 0.1	
	(E,F)		
C6001	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6003	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6005	ECUV1H150JCN	C CHIP+-5% 50V 15P	
C6006	ECUV1H100CCN	C CHIP+-0.25P 50V 10P	
C6016	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6026	ECUV1H102KBN	C CHIP 50V 1000P	
C6027	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6033	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	

Ref. No.	Part No.	Part Name& Description	Remarks
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6208	ECUV1C104KBN	C CHIP 16V 0.1	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6216	ECUV1H103KBN	C CHIP 50V 0.01	
	(F)		
C6217	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6228	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6231	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6305	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6306	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6307	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C6320	ECEA0JKA331	ELECTROLYTIC 6.3V 330	
C6321	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C7001	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C7005	ECUV1E183KBN	C CHIP 25V 0.018	
	(B,D)		
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
	(B,D)		

FILTERS

Ref. No.	Part No.	Part Name& Description	Remarks
FL4901	LSLF0057	BAND PASS	
	(E,F)		

COILS

Ref. No.	Part No.	Part Name& Description	Remarks
L1001	ELF15N005AB	LINE FILTER 0.5A 18M	⚠
	OR VLQS0166	LINE FILTER 0.5A 18M	⚠
	OR VLQS0167	LINE FILTER 0.5A 18M	⚠
	(B,E,F)		
	ELF15N005A	LINE FILTER 0.5A 18M	⚠
	OR LSLQ0287	LINE FILTER 0.5A 18M	⚠
	OR VLQS0166	LINE FILTER 0.5A 18M	⚠
	OR VLQS0167	LINE FILTER 0.5A 18M	⚠
	OR VLQS0170	LINE FILTER 0.6A 18M	⚠
	(D)		
L1002	VLQSAB7D220K	22	
L1003	VLQSAB7D100K	10	
L1006	VLPS0083		
L3014	VLQSH02R390K	39	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L4001	ELELN153KA	15M	
L4101	ELESN471KA	470	
L4201	ELESN101KA	100	
	(E,F)		
L4451	ELESN101KA	100	
	(E,F)		
L6002	ELEXT101KE04	100	
L6301	ELESN101KA	100	
L6302	ELESN470KA	47	
L6303	ERDS2TJ3R3	3.3	
L7001	VLQSAB7D220K	22	
L7003	VLQSH02R101K	100	
L7005	VLPS0092	CHIP	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name& Description	Remarks
X3010	VSXS0195		
X6001	VSXS0232-TB		

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P1001	LSJP0807	CONNECTOR 2P	
	(B,E,F)		
P3551	VJPS0882	CONNECTOR 12P	
P4001	VJSS0888	FE CONNECTOR 2P	
P4451	LSJP0087	CONNECTOR 4P	
	(E,F)		
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

SWITCHES

Ref. No.	Part No.	Part Name& Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0012	MODE SELECT SWITCH	
SW6301	EVQ11A09K	PUSH SWITCH	
SW6303	EVQ11A09K	PUSH SWITCH	
SW6306	EVQ11A09K	PUSH SWITCH	
SW6307	EVQ11A09K	PUSH SWITCH	
SW6309	EVQ11A09K	PUSH SWITCH	
SW6310	EVQ11A09K	PUSH SWITCH	
SW6313	EVQ11A09K	PUSH SWITCH	
SW6314	EVQ11A09K	PUSH SWITCH	
SW6316	EVQ11A09K	PUSH SWITCH	

FUSE& PROTECTOR

Ref. No.	Part No.	Part Name& Description	Remarks
F1001	VSFS0003A16	FUSE 125V 1.6A	⚠
	OR VSFS0032B16	FUSE 125V 1.6A	⚠
	OR XBA1C16NU100	FUSE 125V 1.6A	⚠
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR LSSF009A25E	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR LSSF009A25E	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1003	LSSF009AR37E	IC PROTECTOR 1.5A	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name& Description	Remarks
T1001	ETS28AD2J3NP		⚠
	OR ETS28AD2J3PP		⚠
	OR VTPS0041-1		⚠
	OR VTPS0041-2		⚠
	(B,E,F)		
	ETS28AD2J3NC		⚠
	OR ETS28AD2J3PC		⚠
	OR VTPS0041-1		⚠
	OR VTPS0041-2		⚠
	OR VTPS0042-1		⚠
	OR VTPS0042-2		⚠
	(D)		
T4101	EIQ7QF018Q		

JACKS

Ref. No.	Part No.	Part Name& Description	Remarks
JK3001	LSJH0028	AUDIO/VIDEO JACK SOCKET	
	(B,D)		
	LSJH0029	AUDIO/VIDEO JACK SOCKET	
	(E,F)		
JK3002	LJP68005A	FRONT AUDIO/VIDEO JACK SOCKET	MKA
	(D)		
	LSJH0031	FRONT AUDIO/VIDEO JACK SOCKET	
	(F)		

MISCELLANEOUS

Ref. No.	Part No.	Part Name& Description	Remarks
E21	VEQS0614L	TUNER,UHF/VHF NR	
	(B,D)		
E21	VEQS0614H	TUNER,UHF/VHF NR	
	(E,F)		
E22	LSJA0262	AC CORD W/PLUG,125V	⚠
	OR LSJA0284	AC CORD W/PLUG,125V	⚠
	(D)		
E23	EYF52BC	FUSE HOLDER	
E24	LNM144AP01	LED DISPLAY PANEL	
E27	PNA4611M03KT	INFRARED RECEIVER UNIT	
E82	4B90376-1=15	CSA TUBE	
	(D)		

11.3.3. CAPSTAN STATOR C.B.A. NR ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC2501	AN3846SC	IC, LINEAR CAP./LOADING DRIVE	
	OR AN3845SC	IC, LINEAR CAP./LOADING DRIVE	

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R2501	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2502	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2505	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C2504	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C2506	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C2507	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C2508	ECUV1E104KBN	C CHIP 25V 0.1	
C2509	ECUV1E104KBN	C CHIP 25V 0.1	
C2510	ECUV1E104KBN	C CHIP 25V 0.1	
C2511	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C2517	ECUV1E104KBN	C CHIP 25V 0.1	
C2519	ECUV1H102KBN	C CHIP 50V 1000P	
C2520	ECUV1C225ZFN	C CHIP+80%-20% 16V 2.2	
C2521	ECUV1C225ZFN	C CHIP+80%-20% 16V 2.2	
C2522	ECUV1C225ZFN	C CHIP+80%-20% 16V 2.2	

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P2503	VJSS3337	CONNECTOR 2P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name& Description	Remarks
E127	XQN2+B35	SCREW,STEEL	
E128	XYN2+J7	SCREW W/WASHER,STEEL	
E129	LSMA0384	BACK PLATE,STEEL	
E130(IC2505)	EZMPS300F12	MR HEAD	
E131(P2502)	LSJS0097	CONNECOR 12P	

11.3.4. HEAD AMP C.B.A. (A) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC3501	AN3371SB	IC, LINEAR HEAD AMP	

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R3502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
R3503	ERJ6GEY0R00V	MGF CHIP 1/10W 0	■
R3507	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C3504	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3508	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name& Description	Remarks
L3501	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	LSJS0093	CONNECTOR 10P	
P4091	LSJWM6N085AC	CONNECTOR CABLE W/OUT PLUG,40 VP-P	

11.3.5. HEAD AMP C.B.A. (B,C,D) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC3501	AN3361SB	IC, LINEAR HEAD AMP	

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C3504	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3519	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	
C3520	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	
C3523	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name& Description	Remarks
L3501	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	VJSS0883	CONNECTOR 12P	
P4091	LSJWM6S085AC	CONNECTOR CABLE W/OUT PLUG,AC 40 VP-P	

11.3.6. Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. (E,F) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name& Description	Remarks
IC3501	AN3361SB	IC, LINEAR HEAD AMP	

RESISTORS

Ref. No.	Part No.	Part Name& Description	Remarks
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	

CAPACITORS

Ref. No.	Part No.	Part Name& Description	Remarks
C3504	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3519	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	
C3520	ECUV1H104ZFN	C CHIP+80%-20% 50V 0.1	
C3523	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP+80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP+80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name& Description	Remarks
L3501	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name& Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	VJSS0883	CONNECTOR 12P	
P4091	LSJWM6N085AC	CONNECTOR CABLE W/OUT PLUG,40 VP-P	
P4401	LSJS0095	CONNECTOR 4P	

11.3.7. ELECTRICAL PARTS LOCATED ON CHASSIS

Ref. No.	Part No.	Part Name& Description	Remarks
E22	LSJA0281-S	AC CORD KIT W/PLUG,125V	⚠
	(A,B,E)		
E22	LSJA0267	AC CORD W/PLUG,125V	⚠
	OR LSJA0268	AC CORD W/PLUG,125V	⚠
	OR LSJA0269	AC CORD W/PLUG,125V	⚠
	OR LSJA0270	AC CORD W/PLUG,125V	⚠
	OR LSJA0281	AC CORD W/PLUG,125V	⚠
	(F)		

11.3.8. SUMMARY OF "E" ITEM NUMBERS

REFER TO ELECTRICAL PARTS LIST FOR MODEL INFORMATION

Ref. No.	Part No.	Part Name& Description	Remarks
E1	VEPS6061AA	MAIN C.B.A.	RTL
E1	VEPS6060GA	MAIN C.B.A.	RTL
E1	VEPS6061GC	MAIN C.B.A.	RTL
E1	VEPS6060GC	MAIN C.B.A.	RTL
E1	VEPS6060HA	MAIN C.B.A.	RTL
E1	VEPS6060HB	MAIN C.B.A.	RTL
E6	VEPS5034A	HEAD AMP C.B.A.	RTL
E6	VEPS5033A	HEAD AMP C.B.A.	RTL
E6	VEPS5032A	Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.	RTL
E21	VEQS0614H	TUNER,UHF/VHF NR	
E21	VEQS0614L	TUNER,UHF/VHF NR	
E22	LSJA0262	AC CORD W/PLUG,125V	⚠
E22	LSJA0267	AC CORD W/PLUG,125V	⚠
E22	LSJA0268	AC CORD W/PLUG,125V	⚠
E22	LSJA0269	AC CORD W/PLUG,125V	⚠
E22	LSJA0270	AC CORD W/PLUG,125V	⚠
E22	LSJA0281	AC CORD W/PLUG,125V	⚠
E22	LSJA0281-S	AC CORD KIT W/PLUG,125V	⚠
E22	LSJA0284	AC CORD W/PLUG,125V	⚠
E23	EYF52BC	FUSE HOLDER	
E24	LNM144AP01	LED DISPLAY PANEL	
E27	PNA4611M03KT	INFRARED RECEIVER UNIT	
E82	4B90376-1=15	CSA TUBE	
E126	VEMS0331	CAPSTAN STATOR C.B.A. NR	
E127	XQN2+B35	SCREW,STEEL	
E128	XYN2+J7	SCREW W/WASHER,STEEL	
E129	LSMA0384	BACK PLATE,STEEL	
E130(IC2505)	EZMPS300F12	MR HEAD	
E131(P2502)	LSJS0097	CONNECOR 12P	